WHAT IS CLAIMED IS:

1. A remote management system for performing remote management of a plurality of electronic apparatuses via a communication line and an intermediary apparatus by a managing apparatus, wherein:

the managing apparatus comprises:

a first storage part storing first software with which second software of each of the electronic apparatuses is overwritten to be updated; and

a software transmitting part that transmits the first software to the intermediary apparatus via the communication line;

the intermediary apparatus comprises:

a second storage part;

a software writing part that writes the first software to the second storage part when acquiring the first software from the managing apparatus; and

a software transmitting part that

transmits the first software stored in the second storage part to one of the electronic apparatuses which one requires the second software thereof to be updated; and

the electronic apparatuses each comprises:

a non-volatile storage part storing the second software controlling an operation of the electronic apparatus; and

a software updating part that updates the second software stored in the non-volatile storage part based on the first software when receiving the first software from the intermediary apparatus.

2. The remote management system as claimed in claim 1, wherein, when two or more of the electronic apparatuses require the second software thereof to be updated, the software transmitting part of the intermediary apparatus transmits the first software stored in the second storage part to each of the two or more of the electronic apparatuses.

3. The remote management system as claimed in claim 2, wherein

the first software stored in the storage part of the managing apparatus comprises software programs of different types;

the second software differs in type between two or more of the electronic apparatuses; and

the software transmitting part of the intermediary apparatus transmits two or more of the software programs of the first software to the two or more of the electronic apparatuses in accordance with the types of the second software thereof.

4. The remote management system as claimed in claim 1, wherein:

the managing apparatus further comprises:

a schedule generating part that generates an update date and time for updating the second software; and

a schedule transmitting part that transmits the generated update date and time to the intermediary apparatus;

the software transmitting part of the managing apparatus transmits the first software stored in the first storage part to the intermediary apparatus at a request thereof; and

the intermediary apparatus further comprises:

a schedule writing part that writes the update date and time to the second storage part when receiving the update date and time from the managing apparatus; and

a transmission requesting part that requests the managing apparatus to transmit the first software to the intermediary apparatus when the update date and time stored in the second storage part is reached.

5. The remote management system as claimed in claim 4, wherein:

the intermediary apparatus further comprises:

a transmission rate measuring part that measures a first transmission rate between the

intermediary apparatus and the managing apparatus and a second transmission rate between the intermediary apparatus and the one of the electronic apparatus which one requires the second software thereof to be updated; and

a transmission rate reporting part that reports the first and second transmission rates to the managing apparatus; and

the schedule generating part of the managing apparatus generates the update date and time based on an amount of data of the first software stored in the first storage part and the first and second transmission rates received from the intermediary apparatus.

6. The remote management system as claimed in claim 4, wherein:

the software transmitting part of the intermediary apparatus comprises a communication requesting part that makes a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first

software stored in the second storage part to the one of the electronic apparatuses, and transmits the first software stored in the second storage part to the one of the electronic apparatuses when receiving a response to said request therefrom; and

each of the electronic apparatuses comprises a response part that responds to said request when receiving said request from the intermediary apparatus.

7. The remote management system as claimed in claim 4, wherein:

the software transmitting part of the intermediary apparatus comprises a communication requesting part that makes a request for the one of the electronic apparatuses to communicate with the intermediary apparatus before transmitting the first software stored in the second storage part to the one of the electronic apparatuses; and

each of the electronic apparatuses comprises:

a deferment period managing part that

manages a performance deferment period from when said request from the intermediary apparatus is received to when it becomes possible to update the second software; and

a response part that responds to said request after passage of the performance deferment period.

8. The remote management system as claimed in claim 4, wherein:

the intermediary apparatus further comprises:

a status checking part that checks a status of the one of the electronic apparatuses; and

an update date and time changing part that changes the update date and time stored in the second storage part so that a start of the updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by the status checking part that the one of the electronic apparatuses is prevented from starting the updating

of the second software immediately.

9. The remote management system as claimed in claim 4, wherein the intermediary apparatus further comprises an update date and time changing part that changes the update date and time stored in the second storage part so that a start of the updating of the second software is deferred for a predetermined period of time when receiving a request to defer the updating of the second software from outside the intermediary apparatus.

10. The remote management system as claimed in claim 1, wherein:

the managing apparatus further comprises a schedule generating part generating a transmission date and time for transmitting the first software and an update date and time for updating the second software;

the software transmitting part of the managing apparatus transmits the first software stored in the first storage part and the generated update date and time to the intermediary apparatus when the generated transmission date and time is reached;

the software writing part of the intermediary apparatus writes the first software and the update date and time to the second storage part when receiving the first software and the update date and time from the managing apparatus; and

the software transmitting part of the intermediary apparatus transmits the first software stored in the second storage part to the one of the electronic apparatuses which one requires the second software thereof to be updated when the update date and time stored in the storage part is reached.

11. The remote management system as claimed in claim 10, wherein:

the intermediary apparatus further comprises:

a transmission rate measuring part measuring a first transmission rate between the intermediary apparatus and the managing apparatus and a second transmission rate between the intermediary apparatus and the one of the electronic apparatus which one requires the second software thereof to be updated; and

a transmission rate reporting part reporting the first and second transmission rates to the managing apparatus; and

the schedule generating part of the managing apparatus generates the transmission date and time and the update date and time based on an amount of data of the first software stored in the first storage part and the first and second transmission rates received from the intermediary apparatus.

12. The remote management system as claimed in claim 10, wherein:

the software transmitting part of the intermediary apparatus comprises a communication requesting part that makes a request to the one of

the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the second storage part to the one of the electronic apparatuses, and transmits the first software stored in the second storage part to the one of the electronic apparatuses when receiving a response to said request therefrom; and

each of the electronic apparatuses comprises a response part that responds to said request when receiving said request from the intermediary apparatus.

13. The remote management system as claimed in claim 10, wherein:

the software transmitting part of the intermediary apparatus comprises a communication requesting part that makes a request for the one of the electronic apparatuses to communicate with the intermediary apparatus before transmitting the first software stored in the second storage part to the one of the electronic apparatuses; and

each of the electronic apparatuses

comprises:

a deferment period managing part that manages a performance deferment period from when said request from the intermediary apparatus is received to when it becomes possible to update the second software; and

a response part that responds to said request after passage of the performance deferment period.

14. The remote management system as claimed in claim 10, wherein:

the intermediary apparatus further comprises:

a status checking part that checks a status of the one of the electronic apparatuses; and

an update date and time changing part that changes the update date and time stored in the second storage part so that a start of the updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by the status

checking part that the one of the electronic apparatuses is prevented from starting the updating of the second software immediately.

15. The remote management system as claimed in claim 10, wherein the intermediary apparatus further comprises an update date and time changing part that changes the update date and time stored in the second storage part so that a start of the updating of the second software is deferred for a predetermined period of time when receiving a request to defer the updating of the second software from outside the intermediary apparatus.

16. The remote management system as claimed in claim 1, wherein:

the intermediary apparatus comprises a status checking part that checks a status of the one of the electronic apparatuses; and

the software transmitting part of the intermediary apparatus comprises an updating necessity determining part that determines whether the updating of the second software of the one of the electronic apparatuses has normally ended based on a result of the checking by the status checking part, and repeats the transmission of the first software stored in the second storage to the one of the electronic apparatuses until the updating necessity determining part determines that the updating of the second software of the one of the electronic apparatuses has normally ended.

17. The remote management system as claimed in claim 16, wherein:

the updating necessity determining part of the intermediary apparatus determines that the updating of the second software of the one of the electronic apparatuses has normally ended when receiving a power-on report indicating that power is turned on from the one of the electronic apparatuses; and

each of the electronic apparatuses comprises:

a restart commanding part that causes the electronic apparatus to restart after the updating of the second software by the software updating part is completed; and

a power-on reporting part that reports to the intermediary apparatus that the power is turned on after the restarting of the electronic apparatus.

18. The remote management system as claimed in claim 16, wherein the software transmitting part of the intermediary apparatus comprises a part that stops the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

19. The remote management system as claimed in claim 1, wherein the software updating part of each of the electronic apparatuses comprises a part that cancels the updating of the second software when receiving a request to cancel the updating of the software from outside the electronic apparatus.

20. An intermediary apparatus connected to a managing apparatus via a communication line so as to control communication between the managing apparatus and one or more electronic apparatuses managed remotely by the managing apparatus, the intermediary apparatus comprising:

a storage part;

a software writing part that writes first software to the storage part when receiving the first software from the managing apparatus; and

a software transmitting part that transmits the first software stored in the storage part to one of the electronic apparatuses each storing second software therein which one requires the second software to be updated.

21. The intermediary apparatus as claimed in claim 20, wherein, when two or more of the electronic apparatuses require the second software stored therein to be updated, the software transmitting part transmits the first software to each of the two or more of the electronic apparatuses.

22. The intermediary apparatus as claimed in claim 21, wherein

the first software comprises software programs of different types;

the second software differs in type between two or more of the electronic apparatuses; and

the software transmitting part transmits two or more of the software programs of the first software to the two or more of the electronic apparatuses in accordance with the types of the second software thereof.

23. The intermediary apparatus as claimed in claim 20, further comprising:

a schedule writing part that writes an update date and time to the storage part when receiving the update date and time from the managing apparatus; and

a transmission requesting part that requests the managing apparatus to transmit the first software to the intermediary apparatus when the update date and time stored in the storage part is reached.

24. The intermediary apparatus as claimed in claim 23, wherein the software transmitting part comprises a communication requesting part that makes a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the storage part to the one of the electronic apparatuses, and transmits the first software stored in the storage part to the one of the electronic apparatuses when receiving a response to said request therefrom.

25. The intermediary apparatus as claimed in claim 23, further comprising:

a status checking part that checks a status of the one of the electronic apparatuses; and

an update date and time changing part that changes the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by the status checking part that the one of the electronic apparatuses is prevented from starting the updating of the second software immediately.

26. The intermediary apparatus as claimed in claim 23, further comprising an update date and time changing part that changes the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when receiving a request to defer the updating of the second software from outside the intermediary apparatus.

27. The intermediary apparatus as claimed in claim 26, wherein the software transmitting part comprises a part that stops the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

28. The intermediary apparatus as claimed in claim 20, wherein:

the software writing part writes the first software and an update date and time to the storage part when receiving the first software and the update date and time from the managing apparatus; and

the software transmitting part transmits the first software stored in the storage part to the one of the electronic apparatuses which one requires the second software thereof to be updated when the update date and time stored in the storage part is reached.

29. The intermediary apparatus as claimed in claim 28, wherein the software transmitting part comprises a communication requesting part that makes a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the storage part to the one of the electronic apparatuses, and transmits the first software stored in the storage part to the one of the electronic apparatuses when receiving a response to said request therefrom.

30. The intermediary apparatus as claimed in claim 28, further comprising:

a status checking part that checks a status of the one of the electronic apparatuses; and

an update date and time changing part that changes the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by the status checking part that the one of the electronic apparatuses is

prevented from starting the updating of the second software immediately.

31. The intermediary apparatus as claimed in claim 28, further comprising an update date and time changing part that changes the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when receiving a request to defer the updating of the second software from outside the intermediary apparatus.

32. The intermediary apparatus as claimed in claim 31, wherein the software transmitting part comprises a part that stops the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

33. The intermediary apparatus as claimed in claim 20, further comprising a status checking part that checks a status of the one of the electronic apparatuses; and

the software transmitting part comprises an updating necessity determining part that determines whether updating of the second software of the one of the electronic apparatuses has normally ended based on a result of the checking by the status checking part, and repeats the transmission of the first software stored in the storage to the one of the electronic apparatuses until the updating necessity determining part determines that the updating of the second software of the one of the electronic apparatuses has normally ended.

34. The intermediary apparatus as claimed in claim 33, wherein the updating necessity determining part determines that the updating of the second software of the one of the electronic apparatuses has normally ended when receiving a power-on report indicating that power is turned on

from the one of the electronic apparatuses

35. The intermediary apparatus as claimed in claim 33, wherein the software transmitting part comprises a part that stops the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

36. A software updating method in an intermediary apparatus connected to a managing apparatus via a communication line so as to control communication between the managing apparatus and one or more electronic apparatuses managed remotely by the managing apparatus, the software updating method comprising the steps of:

(a) writing an update date and time to a storage part of the intermediary apparatus when the update date and time is received from the managing

apparatus;

(b) requesting the managing apparatus to transmit software to the intermediary apparatus when the update date and time in the storage part is reached; and

(c) writing the software to the storage part when the software transmitted in response to said step (b) from the managing apparatus is acquired, transmitting the software in the storage part to at least one of the electronic apparatuses which one requires software thereof to be updated, and causing the one of the electronic apparatuses to update the software thereof.

37. The software updating method as claimed in claim 36, further comprising the step of:

(d) checking a status of the one of the electronic apparatuses; and

(e) changing the update date and time stored in the storage part so that a start of the updating of the software is deferred for a predetermined period of time when it is determined based on a

result of the checking by said step (d) that the one of the electronic apparatuses is prevented from starting the updating of the software immediately.

38. The software updating method as claimed in claim 36, further comprising the step of (d) changing the update date and time stored in the storage part so that a start of the updating of the software is deferred for a predetermined period of time when receiving a request to defer the updating of the software from outside the intermediary apparatus.

39. The software updating method as claimed in claim 36, further comprising the steps of:

(d) checking a status of the one of the electronic apparatuses; and

(e) repeating the transmission of the software stored in the storage to the one of the

electronic apparatuses until it is determined based on a result of the checking by said step (d) that the updating of the software of the one of the electronic apparatuses has normally ended.

40. The software updating method as claimed in claim 39, further comprising the step of (f) stopping the transmission of the software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

41. A software updating method in an intermediary apparatus connected to a managing apparatus via a communication line so as to control communication between the managing apparatus and one or more electronic apparatuses managed remotely by the managing apparatus, the software updating method comprising the steps of:

(a) writing software and an update date and time to a storage part of the intermediary apparatus when the software and the update date and time are received from the managing apparatus; and

(b) transmitting the software in the storage part to at least one of the electronic apparatuses which one requires software thereof to be updated and causing the one of the electronic apparatuses to update the software thereof when the update date and time in the storage part is reached.

42. The software updating method as claimed in claim 41, further comprising the step of:

(c) checking a status of the one of the electronic apparatuses; and

(d) changing the update date and time stored in the storage part so that a start of the updating of the software is deferred for a predetermined period of time when it is determined based on a result of the checking by said step (c) that the one of the electronic apparatuses is prevented from starting the updating of the software immediately.

43. The software updating method as claimed in claim 41, further comprising the step of (c) changing the update date and time stored in the storage part so that a start of the updating of the software is deferred for a predetermined period of time when receiving a request to defer the updating of the software from outside the intermediary apparatus.

44. The software updating method as claimed in claim 41, further comprising the steps of:

(c) checking a status of the one of the electronic apparatuses; and

(d) repeating the transmission of the software stored in the storage to the one of the electronic apparatuses until it is determined based on a result of the checking by said step (c) that the updating of the software of the one of the electronic apparatuses has normally ended.

45. The software updating method as claimed in claim 44, further comprising the step of (e) stopping the transmission of the software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

46. A software updating method in an intermediary apparatus connected to a managing apparatus via a communication line so as to control communication between the managing apparatus and one or more electronic apparatuses managed remotely by the managing apparatus, the software updating method comprising the steps of:

(a) writing first software to a storage part of the intermediary apparatus when the first software is received from the managing apparatus; and

(b) transmitting the first software stored in the storage part to one of the electronic apparatuses each storing second software therein which one requires the second software to be updated.

47. The software updating method as claimed in claim 46, wherein, when two or more of the electronic apparatuses require the second software stored therein to be updated, said step (b) transmits the first software to each of the two or more of the electronic apparatuses.

48. The software updating method as claimed in claim 47, wherein

the first software comprises software programs of different types;

the second software differs in type between two or more of the electronic apparatuses; and

said step (b) transmits two or more of the software programs of the first software to the two or more of the electronic apparatuses in accordance with the types of the second software thereof.

49. The software updating method as claimed

in claim 46, further comprising the steps of:

(c) writing an update date and time to the storage part when the update date and time is received from the managing apparatus; and

(d) requesting the managing apparatus to transmit the first software to the intermediary apparatus when the update date and time stored in the storage part is reached.

50. The software updating method as claimed in claim 49, wherein said step (b) comprises the step of (e) making a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the storage part to the one of the electronic apparatuses, and transmits the first software stored in the storage part to the one of the electronic apparatuses when a response to said request is received therefrom.

51. The software updating method as claimed in claim 49, further comprising the steps of:

(e) checking a status of the one of the electronic apparatuses; and

(f) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by said step (e) that the one of the electronic apparatuses is prevented from starting the updating of the second software immediately.

52. The software updating method as claimed in claim 49, further comprising the step of (e) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when a request to defer the updating of the second software is received from outside the intermediary apparatus.

53. The software updating method as claimed in claim 52, wherein said step (b) comprises the step of (f) stopping the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

54. The software updating method as claimed in claim 46, wherein:

said step (a) writes the first software and an update date and time to the storage part when the first software and the update date and time are received from the managing apparatus; and

said step (b) transmits the first software stored in the storage part to the one of the electronic apparatuses which one requires the second software thereof to be updated when the update date and time stored in the storage part is reached.

55. The software updating method as claimed in claim 54, wherein said step (b) comprises the step of (c) making a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the storage part to the one of the electronic apparatuses, and transmits the first software stored in the storage part to the one of the electronic apparatuses when a response to said request is received therefrom.

56. The software updating method as claimed in claim 54, further comprising the steps of:

(c) checking a status of the one of the electronic apparatuses; and

(d) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by said step (c) that the one of the electronic apparatuses is prevented from starting the updating of the second software

immediately.

57. The software updating method as claimed in claim 54, further comprising the step of (c) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when a request to defer the updating of the second software is received from outside the intermediary apparatus.

58. The software updating method as claimed in claim 57, wherein said step (b) comprises the step of stopping the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

59. The software updating method as claimed in claim 46, further comprising the step of (c) checking a status of the one of the electronic apparatuses,

wherein said step (b) comprises the step of (d) determining whether updating of the second software of the one of the electronic apparatuses has normally ended based on a result of the checking by said step (c), and repeats the transmission of the first software stored in the storage to the one of the electronic apparatuses until said step (d) determines that the updating of the second software of the one of the electronic apparatuses has normally ended.

60. The software updating method as claimed in claim 59, wherein said step (d) determines that the updating of the second software of the one of the electronic apparatuses has normally ended when a power-on report indicating that power is turned on is received from the one of the electronic apparatuses

61. The software updating method as claimed in claim 59, wherein said step (b) comprises the step of (e) stopping the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

62. A computer-readable recording medium recording a program for causing a computer to execute a software updating method in an intermediary apparatus connected to a managing apparatus via a communication line so as to control communication between the managing apparatus and one or more electronic apparatuses managed remotely by the managing apparatus, the software updating method comprising the steps of:

(a) writing first software to a storage part of the intermediary apparatus when the first software is received from the managing apparatus; and

(b) transmitting the first software stored in the storage part to one of the electronic apparatuses each storing second software therein

which one requires the second software to be updated.

63. The computer-readable recording medium as claimed in claim 62, wherein, when two or more of the electronic apparatuses require the second software stored therein to be updated, said step (b) transmits the first software to each of the two or more of the electronic apparatuses.

64. The computer-readable recording medium as claimed in claim 63, wherein

the first software comprises software programs of different types;

the second software differs in type between two or more of the electronic apparatuses; and

said step (b) transmits two or more of the software programs of the first software to the two or more of the electronic apparatuses in accordance with the types of the second software thereof.

65. The computer-readable recording medium as claimed in claim 62, wherein the software updating method further comprises the steps of:

(c) writing an update date and time to the storage part when the update date and time is received from the managing apparatus; and

(d) requesting the managing apparatus to transmit the first software to the intermediary apparatus when the update date and time stored in the storage part is reached.

66. The computer-readable recording medium as claimed in claim 65, wherein said step (b) comprises the step of (e) making a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the storage part to the one of the electronic apparatuses, and transmits the first software stored in the storage part to the one of the electronic apparatuses when a response to said request is received therefrom.

67. The computer-readable recording medium as claimed in claim 65, wherein the software updating method further comprises the steps of:

(e) checking a status of the one of the electronic apparatuses; and

(f) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by said step (e) that the one of the electronic apparatuses is prevented from starting the updating of the second software immediately.

68. The computer-readable recording medium as claimed in claim 65, wherein the software updating method further comprises the step of (e) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when a request to defer the updating of the second software is received from outside the intermediary apparatus.

69. The computer-readable recording-medium as claimed in claim 68, wherein said step (b) comprises the step of (f) stopping the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

70. The computer-readable recording medium as claimed in claim 62, wherein:

said step (a) writes the first software and an update date and time to the storage part when the first software and the update date and time are received from the managing apparatus; and

said step (b) transmits the first software stored in the storage part to the one of the electronic apparatuses which one requires the second software thereof to be updated when the update date and time stored in the storage part is reached.

71. The computer-readable recording medium as claimed in claim 70, wherein said step (b) comprises the step of (c) making a request to the one of the electronic apparatuses for communication with the intermediary apparatus before transmitting the first software stored in the storage part to the one of the electronic apparatuses, and transmits the first software stored in the storage part to the one of the electronic apparatuses when a response to said request is received therefrom.

72. The computer-readable recording medium as claimed in claim 70, wherein the software updating method further comprises the steps of:

(c) checking a status of the one of the electronic apparatuses; and

(d) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when it is determined based on a result of the checking by said step (c) that the one of the electronic apparatuses is prevented from

starting the updating of the second software immediately.

73. The computer-readable recording medium as claimed in claim 70, wherein the software updating method further comprises the step of (c) changing the update date and time stored in the storage part so that a start of updating of the second software is deferred for a predetermined period of time when a request to defer the updating of the second software is received from outside the intermediary apparatus.

74. The computer-readable recording medium as claimed in claim 73, wherein said step (b) comprises the step of stopping the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

75. The computer-readable recording medium as claimed in claim 62, wherein:

the software updating method further comprises the step of (c) checking a status of the one of the electronic apparatuses; and

said step (b) comprises the step of (d) determining whether updating of the second software of the one of the electronic apparatuses has normally ended based on a result of the checking by said step (c), and repeats the transmission of the first software stored in the storage to the one of the electronic apparatuses until said step (d) determines that the updating of the second software of the one of the electronic apparatuses has normally ended.

76. The computer-readable recording medium as claimed in claim 75, wherein said step (d) determines that the updating of the second software of the one of the electronic apparatuses has normally ended when a power-on report indicating that power is turned on is received from the one of the electronic apparatuses

77. The computer-readable recording medium as claimed in claim 75, wherein said step (b) comprises the step of (e) stopping the transmission of the first software to the one of the electronic apparatuses when the transmission is prevented from being completed by a preset expiration date and time.

78. A program for causing a computer to execute a software updating method in an intermediary apparatus connected to a managing apparatus via a communication line so as to control communication between the managing apparatus and one or more electronic apparatuses managed remotely by the managing apparatus, the software updating method comprising the steps of:

(a) writing first software to a storage part of the intermediary apparatus when the first software is received from the managing apparatus; and

(b) transmitting the first software stored in the storage part to one of the electronic apparatuses each storing second software therein which one requires the second software to be updated.

ABSTRACT OF THE DISCLOSURE

A remote management system for performing remote management of electronic apparatuses via a communication line and an intermediary apparatus by a managing apparatus is provided. The managing apparatus includes a storage part storing first software for updating second software of each of the electronic apparatuses and a software transmitting part that transmits the first software to the intermediary apparatus. The intermediary apparatus includes a storage part, a software writing part that writes the first software to the second storage part, and a software transmitting part that transmits the first software to one of the electronic apparatuses which one requires the second software thereof to be updated. The electronic apparatuses each includes a non-volatile storage part storing the second software and a software updating part that updates the second software based on the first software received from the intermediary apparatus.

FIG.1

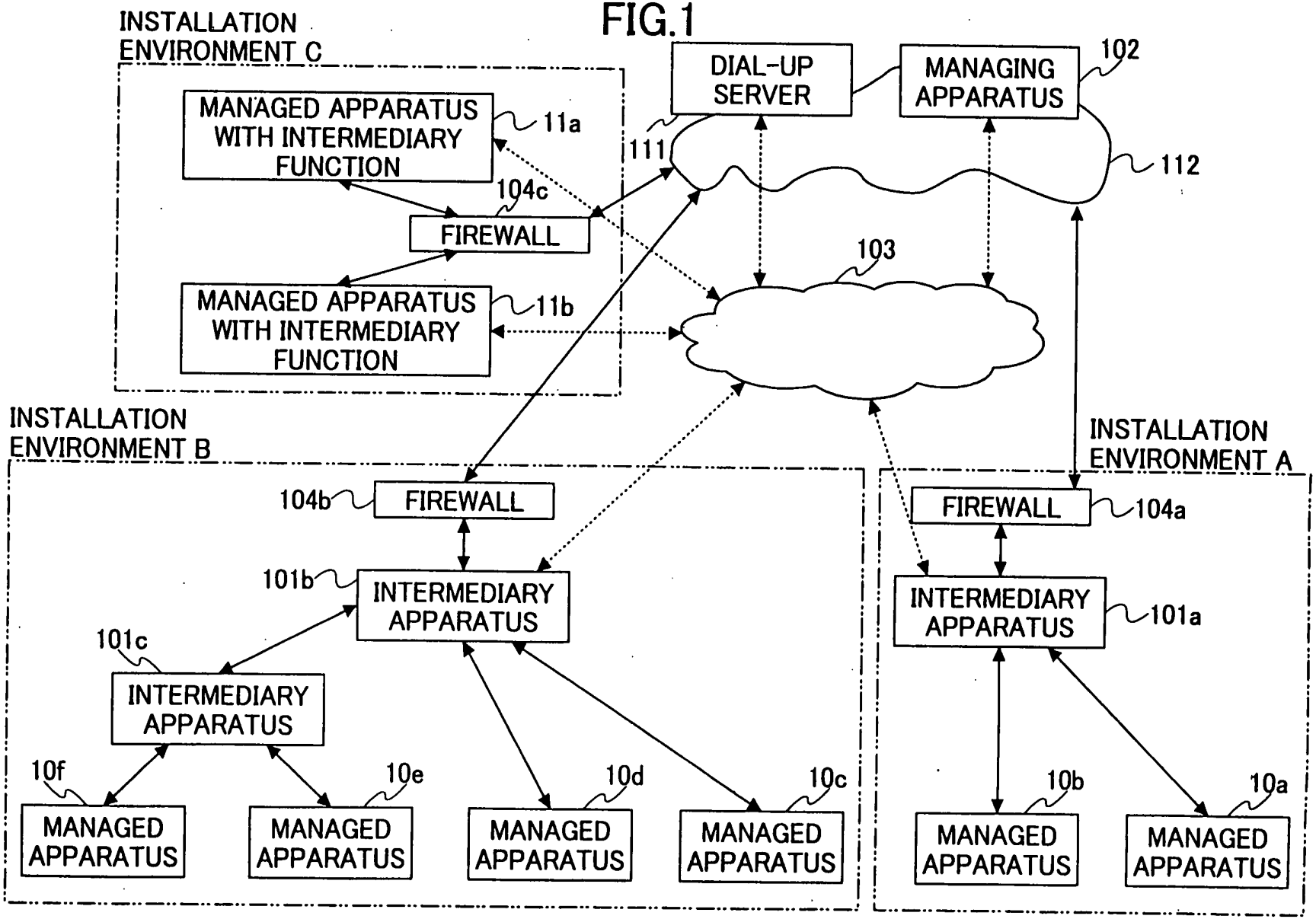

INSTALLATION ENVIRONMENT C
MANAGED APPARATUS WITH INTERMEDIARY FUNCTION
11a
104c
FIREWALL
MANAGED APPARATUS WITH INTERMEDIARY FUNCTION
11b
DIAL-UP SERVER
MANAGING APPARATUS
102
111
112
103
INSTALLATION ENVIRONMENT B
104b
FIREWALL
101b
INTERMEDIARY APPARATUS
101c
INTERMEDIARY APPARATUS
10f
10e
10d
10c
MANAGED APPARATUS
MANAGED APPARATUS
MANAGED APPARATUS
MANAGED APPARATUS
INSTALLATION ENVIRONMENT A
FIREWALL
104a
INTERMEDIARY APPARATUS
101a
10b
10a
MANAGED APPARATUS
MANAGED APPARATUS

FIG.2A

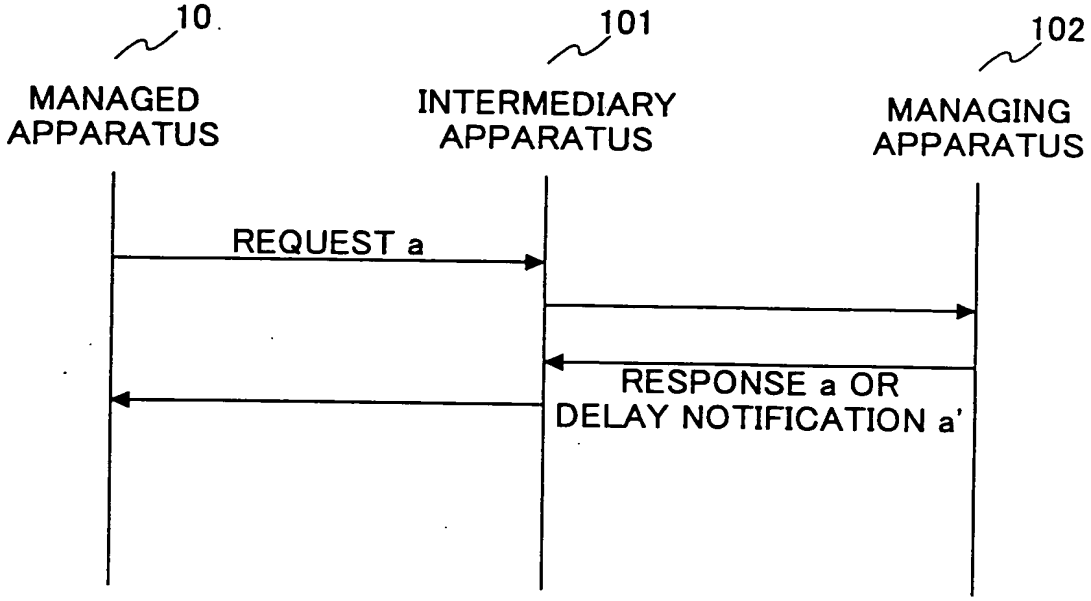

10
101
102
MANAGED APPARATUS
INTERMEDIARY APPARATUS
MANAGING APPARATUS
REQUEST a
RESPONSE a OR DELAY NOTIFICATION a'

FIG.2B

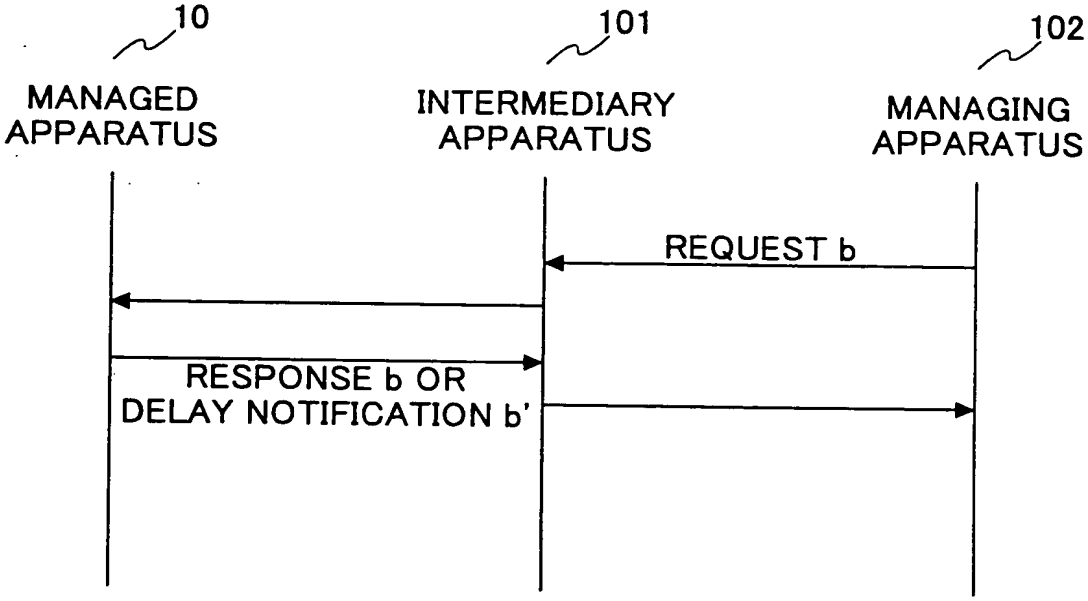

10
101
102
MANAGED APPARATUS
INTERMEDIARY APPARATUS
MANAGING APPARATUS
REQUEST b
RESPONSE b OR DELAY NOTIFICATION b'

FIG.3

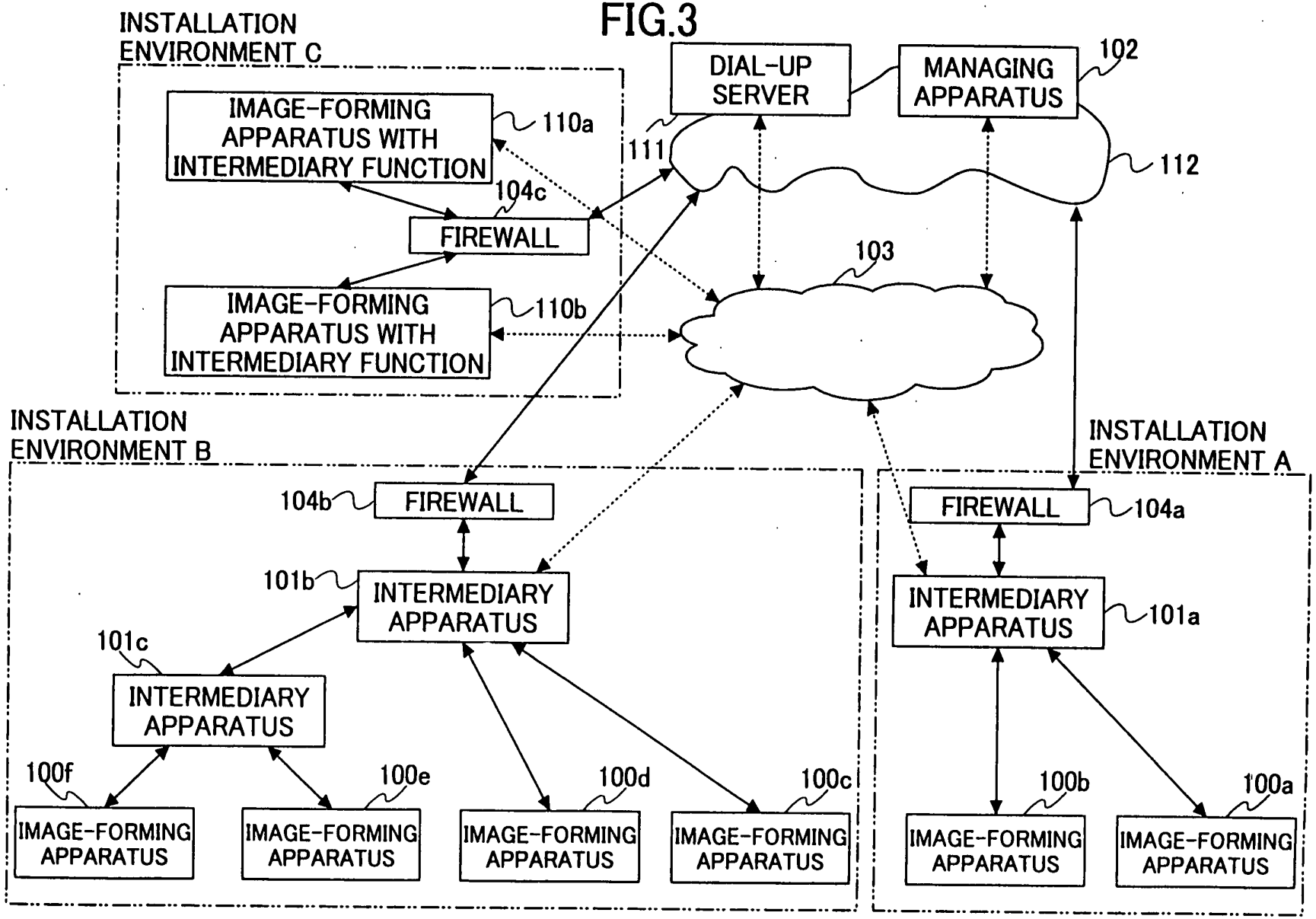

INSTALLATION ENVIRONMENT C
IMAGE-FORMING APPARATUS WITH INTERMEDIARY FUNCTION
110a
104c
FIREWALL
IMAGE-FORMING APPARATUS WITH INTERMEDIARY FUNCTION
110b
DIAL-UP SERVER
MANAGING APPARATUS
102
111
112
103
INSTALLATION ENVIRONMENT B
104b
FIREWALL
101b
INTERMEDIARY APPARATUS
101c
INTERMEDIARY APPARATUS
100f
100e
100d
100c
IMAGE-FORMING APPARATUS
IMAGE-FORMING APPARATUS
IMAGE-FORMING APPARATUS
IMAGE-FORMING APPARATUS
INSTALLATION ENVIRONMENT A
FIREWALL
104a
INTERMEDIARY APPARATUS
101a
100b
100a
IMAGE-FORMING APPARATUS
IMAGE-FORMING APPARATUS

FIG.4

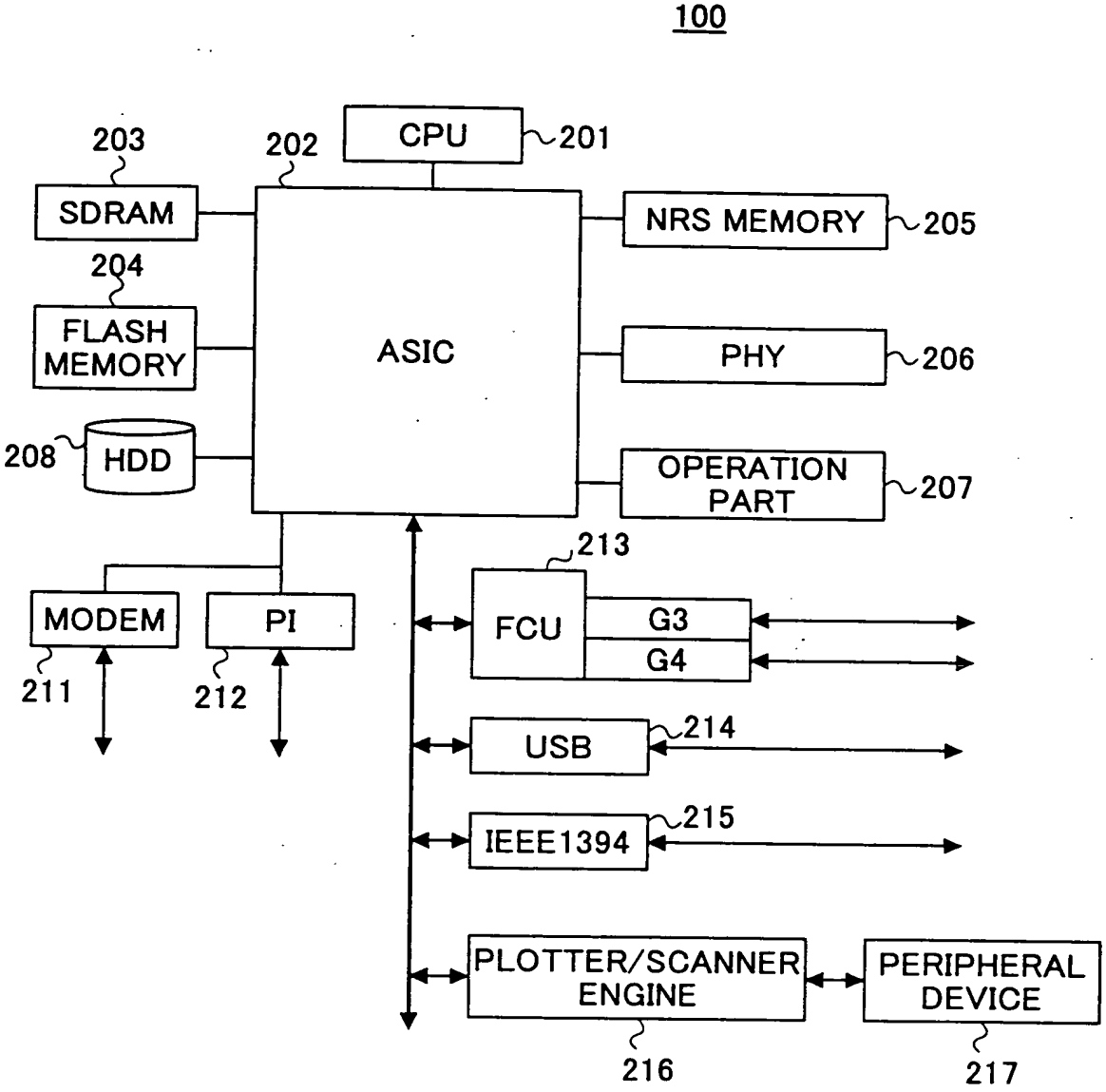

100
CPU
201
203
202
SDRAM
NRS MEMORY
205
204
FLASH MEMORY
ASIC
PHY
206
208
HDD
OPERATION PART
207
213
MODEM
PI
FCU
G3
G4
211
212
USB
214
IEEE1394
215
PLOTTER/SCANNER ENGINE
PERIPHERAL DEVICE
216
217

FIG.5

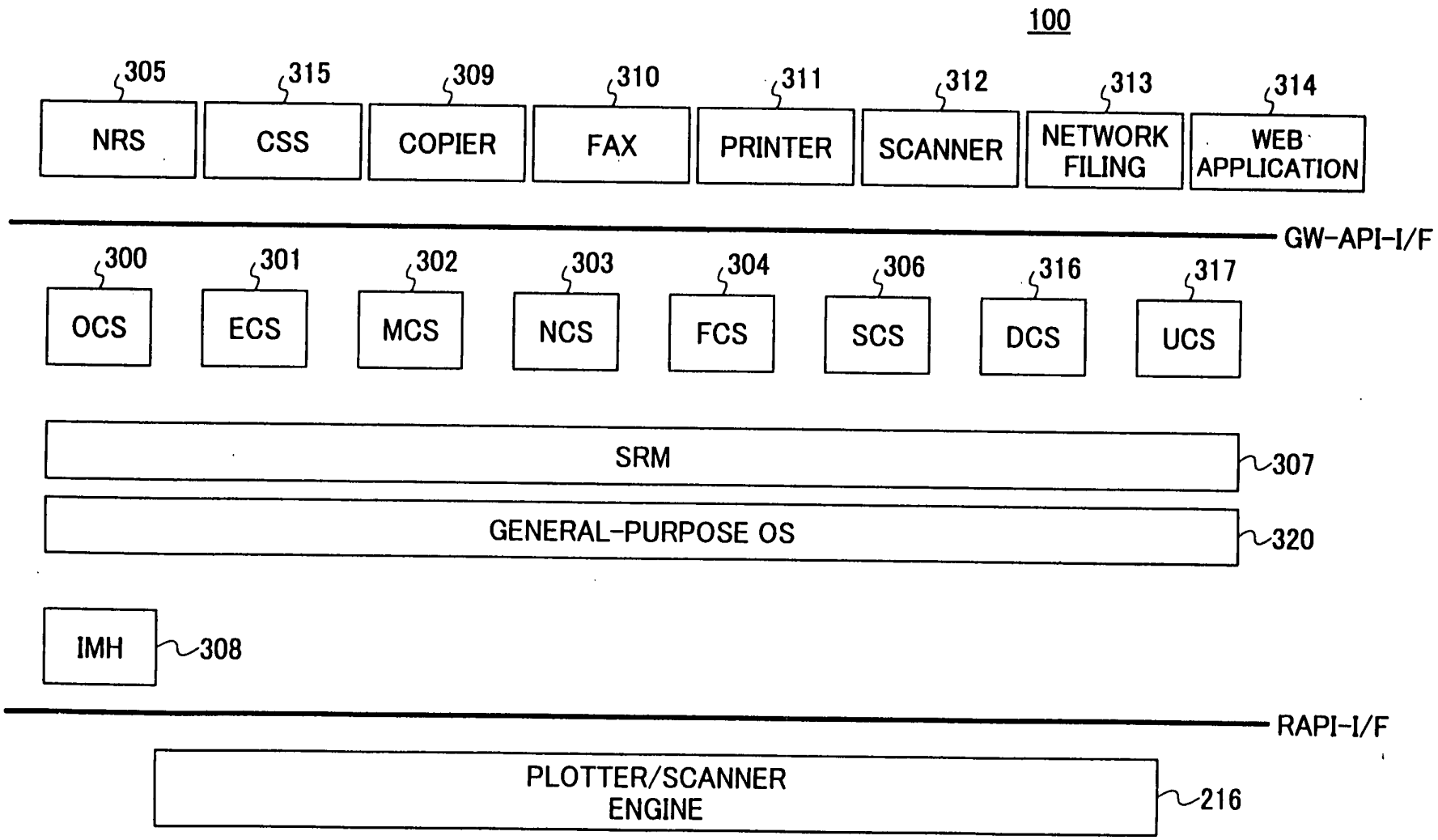

100
305
315
309
310
311
312
313
314
NRS
CSS
COPIER
FAX
PRINTER
SCANNER
NETWORK FILING
WEB APPLICATION
GW-API-I/F
300
301
302
303
304
306
316
317
OCS
ECS
MCS
NCS
FCS
SCS
DCS
UCS
SRM
307
GENERAL-PURPOSE OS
320
IMH
308
RAPI-I/F
PLOTTER/SCANNER ENGINE
216

FIG.6

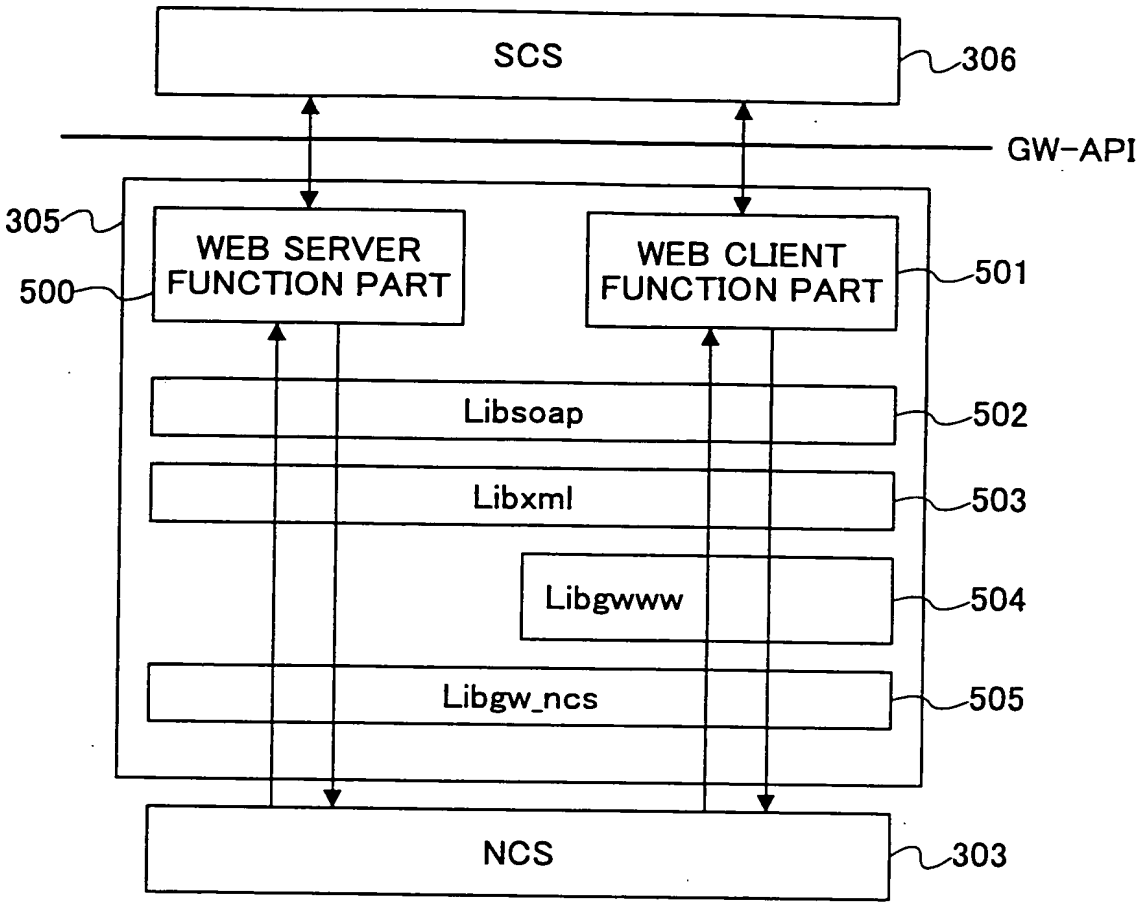

SCS
306
GW-API
305
WEB SERVER FUNCTION PART
500
WEB CLIENT FUNCTION PART
501
Libsoap
502
Libxml
503
Libgwww
504
Libgw_ncs
505
NCS
303

FIG.7

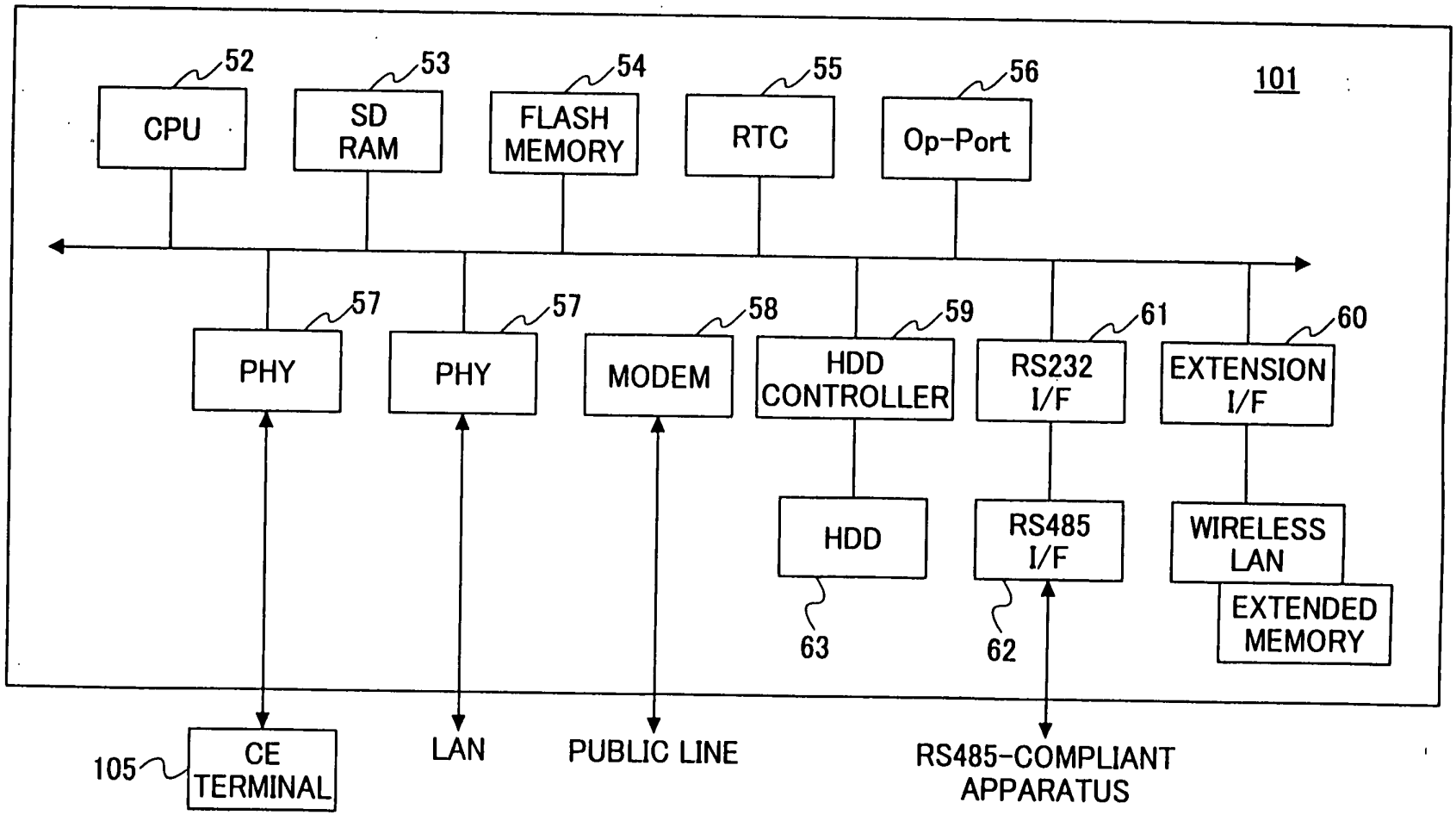

101
52
CPU
53
SD RAM
54
FLASH MEMORY
55
RTC
56
Op-Port
57
PHY
57
PHY
58
MODEM
59
HDD CONTROLLER
61
RS232 I/F
60
EXTENSION I/F
HDD
RS485 I/F
WIRELESS LAN
EXTENDED MEMORY
63
62
105
CE TERMINAL
LAN
PUBLIC LINE
RS485-COMPLIANT APPARATUS

FIG.8

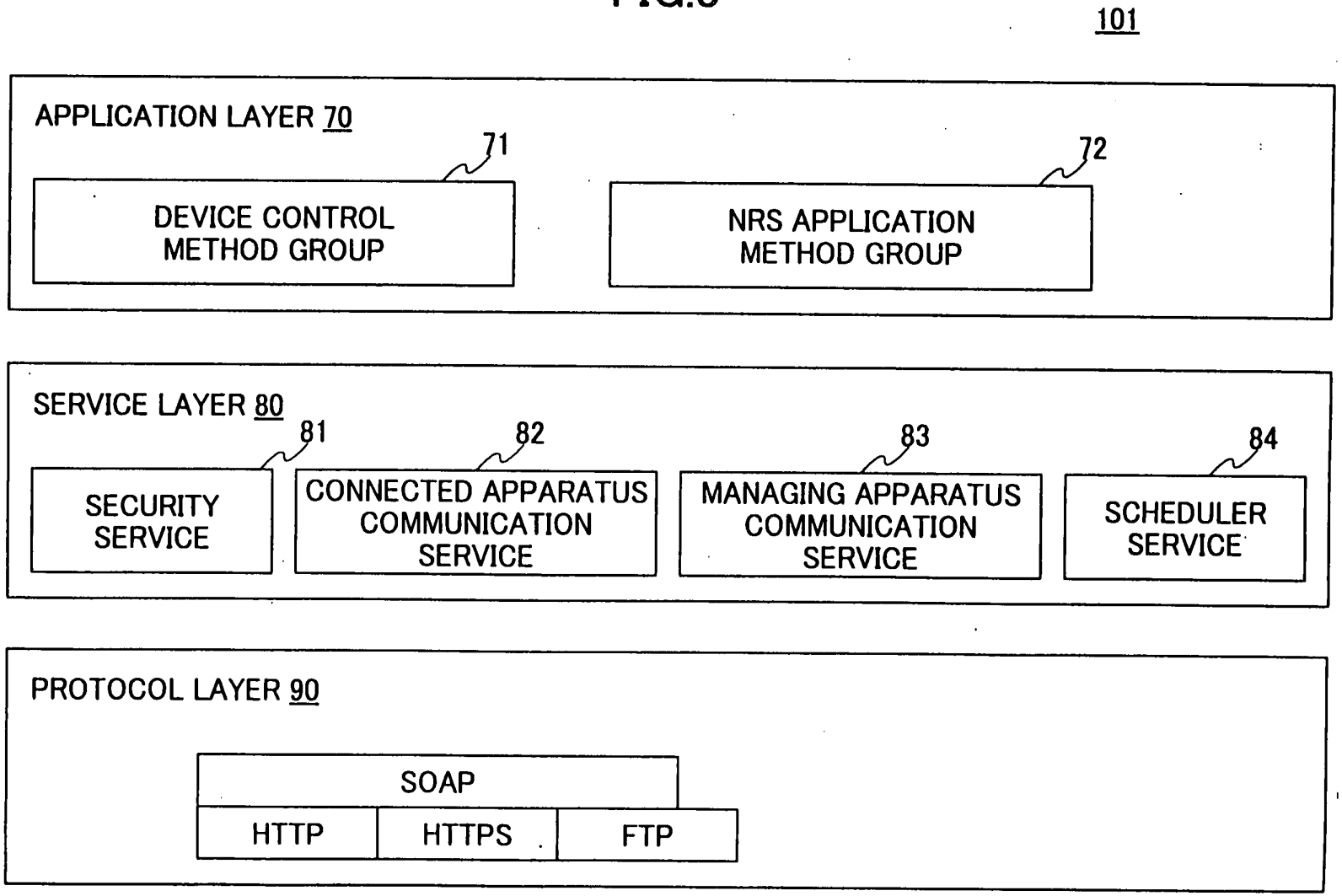

101
APPLICATION LAYER 70
71
DEVICE CONTROL METHOD GROUP
72
NRS APPLICATION METHOD GROUP
SERVICE LAYER 80
81
SECURITY SERVICE
82
CONNECTED APPARATUS COMMUNICATION SERVICE
83
MANAGING APPARATUS COMMUNICATION SERVICE
84
SCHEDULER SERVICE
PROTOCOL LAYER 90
SOAP
HTTP
HTTPS
FTP

FIG.9

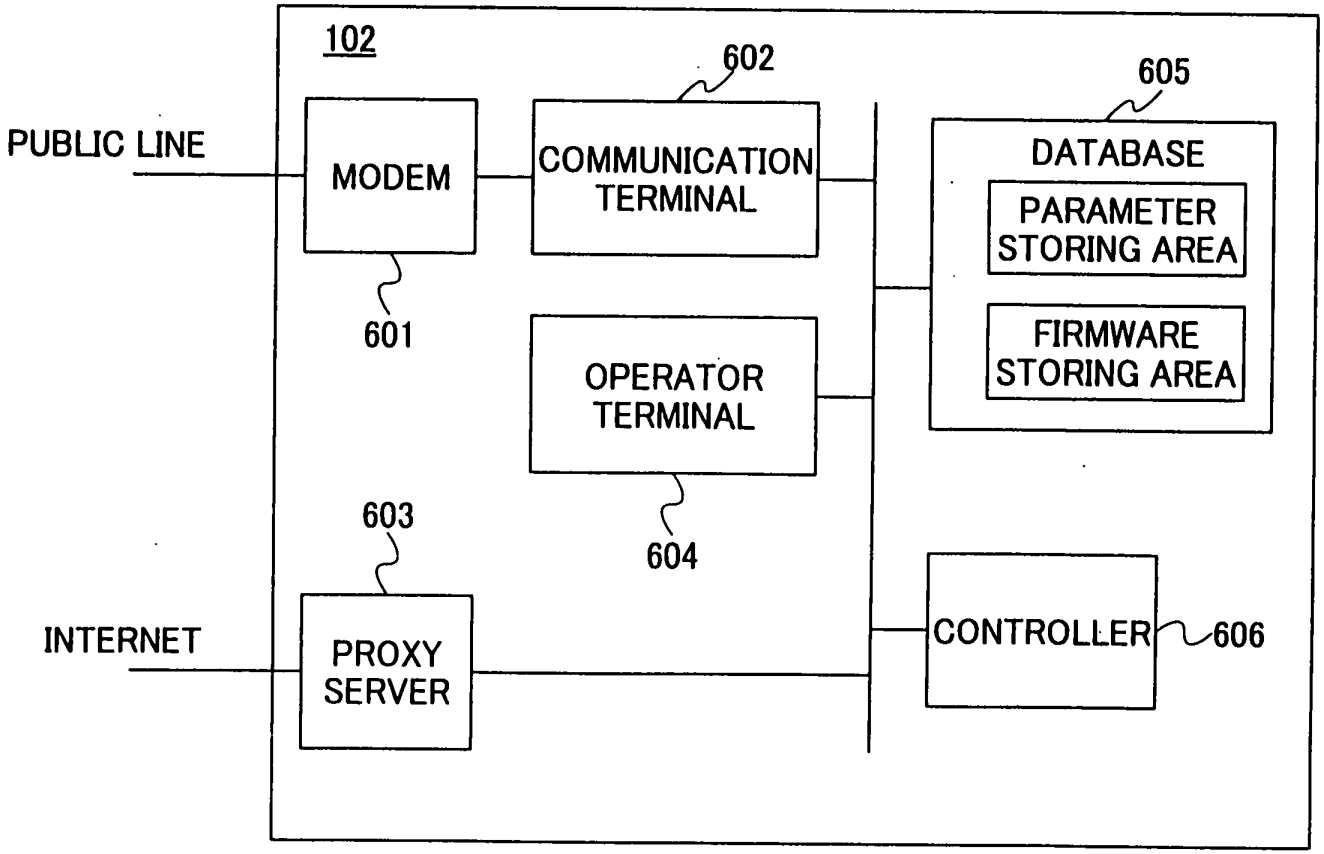

102
602
605
PUBLIC LINE
MODEM
COMMUNICATION TERMINAL
DATABASE
PARAMETER STORING AREA
FIRMWARE STORING AREA
601
OPERATOR TERMINAL
604
603
INTERNET
PROXY SERVER
CONTROLLER
606

FIG.10

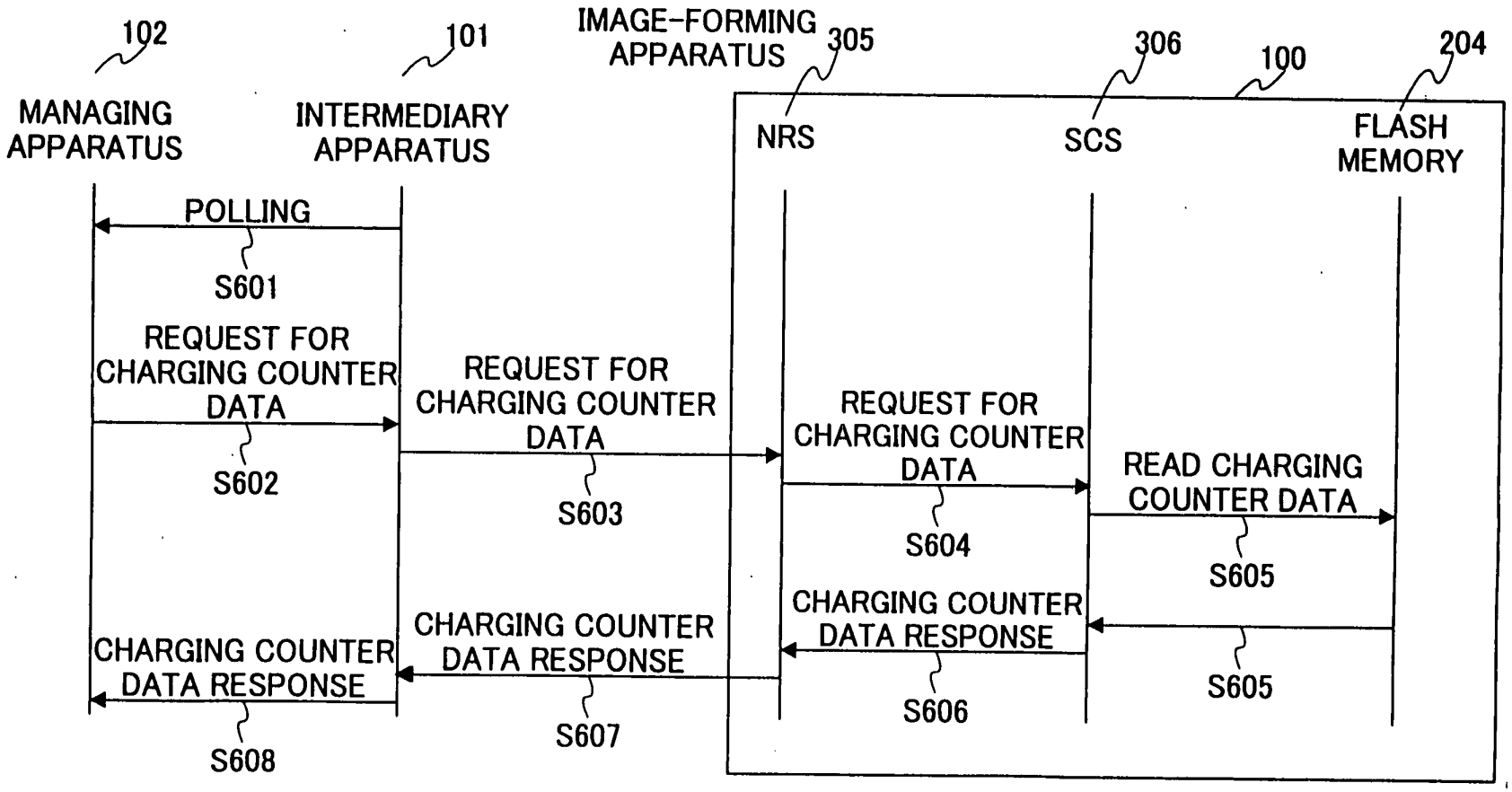

102
MANAGING APPARATUS
101
INTERMEDIARY APPARATUS
IMAGE-FORMING APPARATUS
305
NRS
306
SCS
100
204
FLASH MEMORY
POLLING
S601
REQUEST FOR CHARGING COUNTER DATA
S602
REQUEST FOR CHARGING COUNTER DATA
S603
REQUEST FOR CHARGING COUNTER DATA
S604
READ CHARGING COUNTER DATA
S605
CHARGING COUNTER DATA RESPONSE
S606
S605
CHARGING COUNTER DATA RESPONSE
S607
CHARGING COUNTER DATA RESPONSE
S608

FIG.11

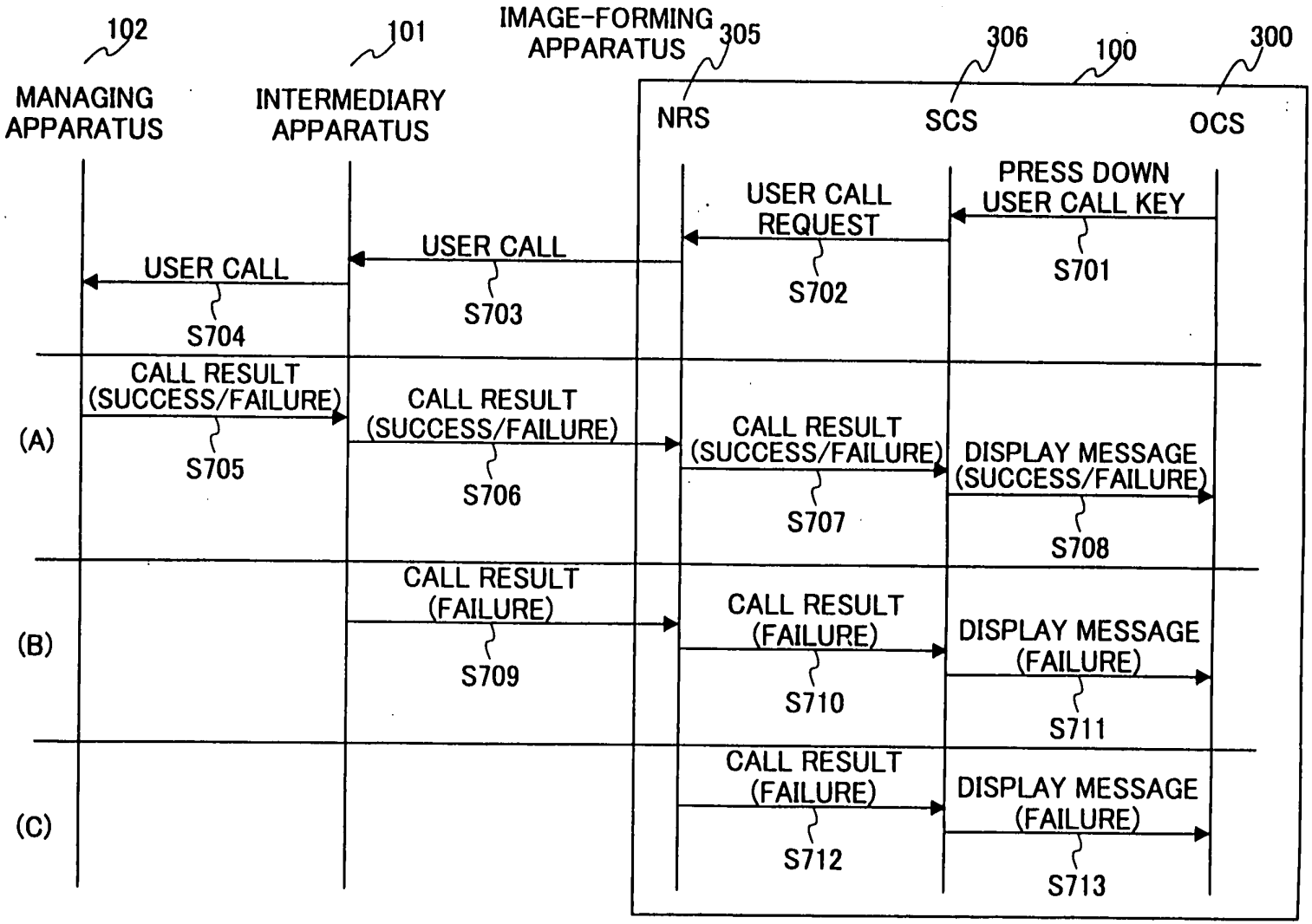

102
MANAGING APPARATUS
101
INTERMEDIARY APPARATUS
IMAGE-FORMING APPARATUS
305
NRS
306
SCS
100
300
OCS
PRESS DOWN USER CALL KEY
S701
USER CALL REQUEST
S702
USER CALL
S703
USER CALL
S704
(A)
CALL RESULT (SUCCESS/FAILURE)
S705
CALL RESULT (SUCCESS/FAILURE)
S706
CALL RESULT (SUCCESS/FAILURE)
S707
DISPLAY MESSAGE (SUCCESS/FAILURE)
S708
(B)
CALL RESULT (FAILURE)
S709
CALL RESULT (FAILURE)
S710
DISPLAY MESSAGE (FAILURE)
S711
(C)
CALL RESULT (FAILURE)
S712
DISPLAY MESSAGE (FAILURE)
S713

FIG.12

CODE	CONTENTS (DETECTED SC)
TYPE A	·DISABLE HARDWARE RESOURCES ·CANNOT BE CANCELED BY USER OR "SC RESET" FROM MANAGING APPARATUS
TYPE B	·DISABLE ONLY PARTICULAR FUNCTION
TYPE C	·DISPLAY NO "SC" ON OPERATION PART ·LOG SC OCCURRENCE INTERNALLY
TYPE D	·DISABLE HARDWARE RESOURCES ·CAN BE CANCELED BY SWITCHING OFF AND ON MAIN POWER SUPPLY OR SOFT POWER SUPPLY KEY

FIG.13

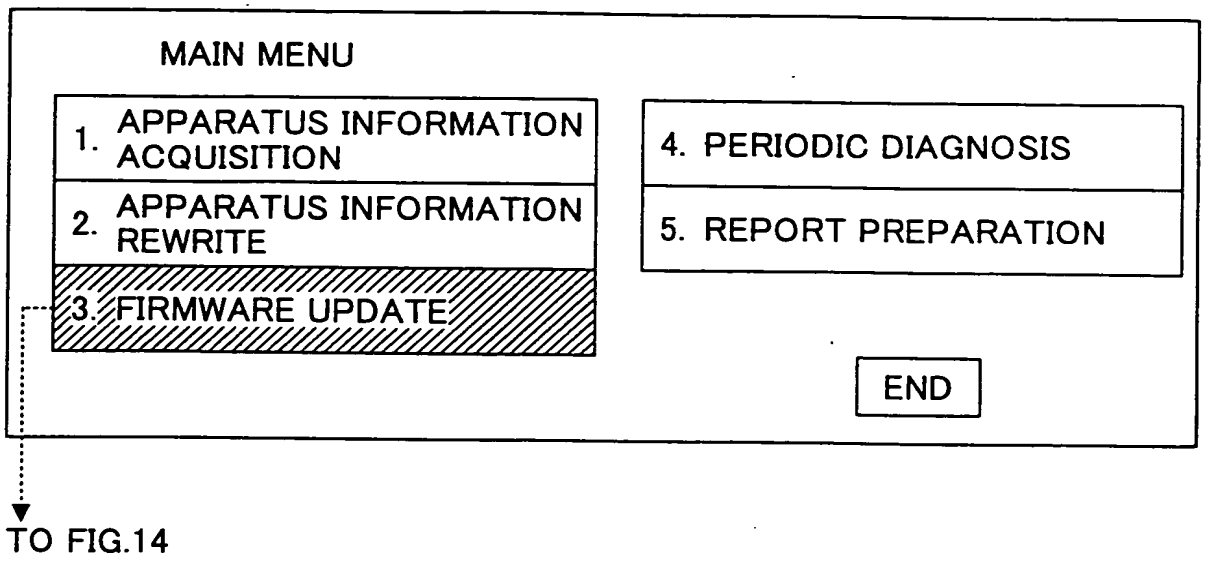

MAIN MENU
1. APPARATUS INFORMATION ACQUISITION
2. APPARATUS INFORMATION REWRITE
3. FIRMWARE UPDATE
4. PERIODIC DIAGNOSIS
5. REPORT PREPARATION
END
TO FIG.14

FIG.14

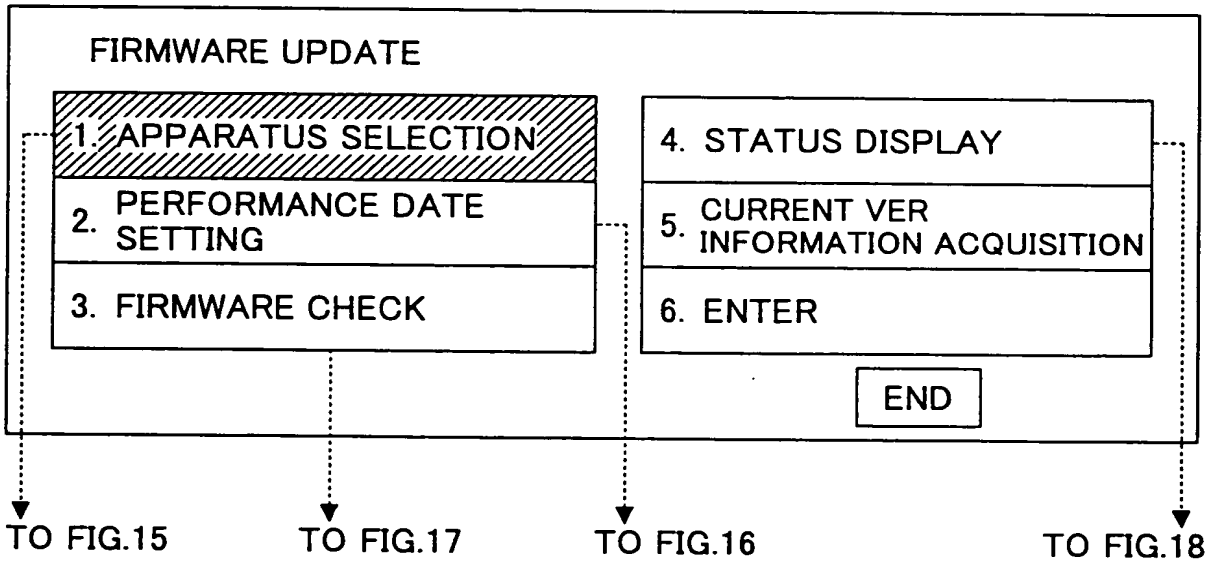

FIRMWARE UPDATE
1. APPARATUS SELECTION
2. PERFORMANCE DATE SETTING
3. FIRMWARE CHECK
4. STATUS DISPLAY
5. CURRENT VER INFORMATION ACQUISITION
6. ENTER
END
TO FIG.15
TO FIG.17
TO FIG.16
TO FIG.18

FIG.15

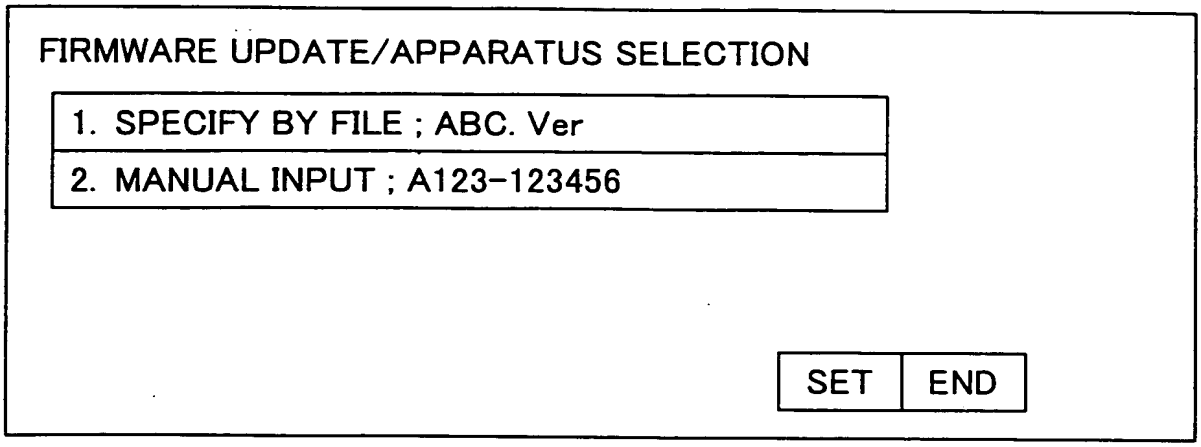

FIRMWARE UPDATE/APPARATUS SELECTION
1. SPECIFY BY FILE ; ABC. Ver
2. MANUAL INPUT ; A123-123456
SET
END

FIG.16

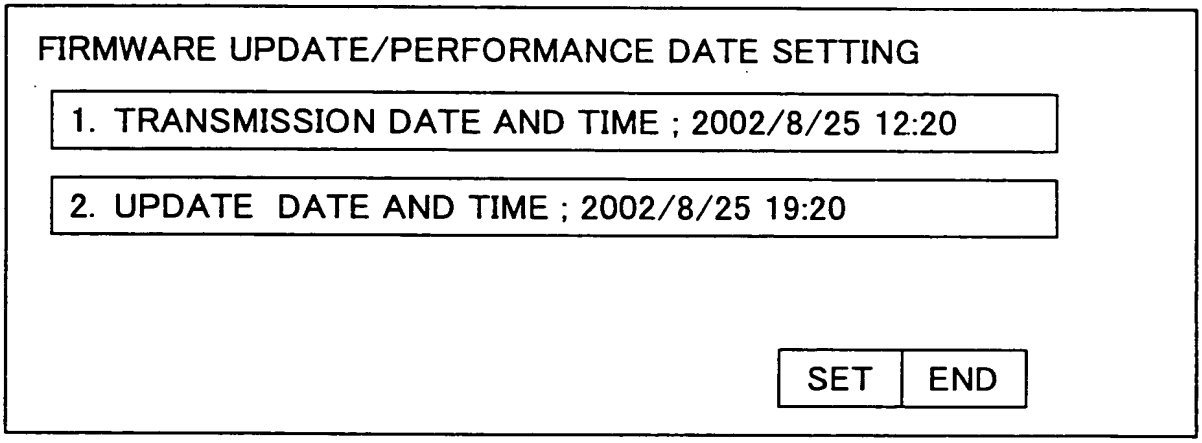

FIRMWARE UPDATE/PERFORMANCE DATE SETTING
1. TRANSMISSION DATE AND TIME ; 2002/8/25 12:20
2. UPDATE DATE AND TIME ; 2002/8/25 19:20
SET
END

FIG.17

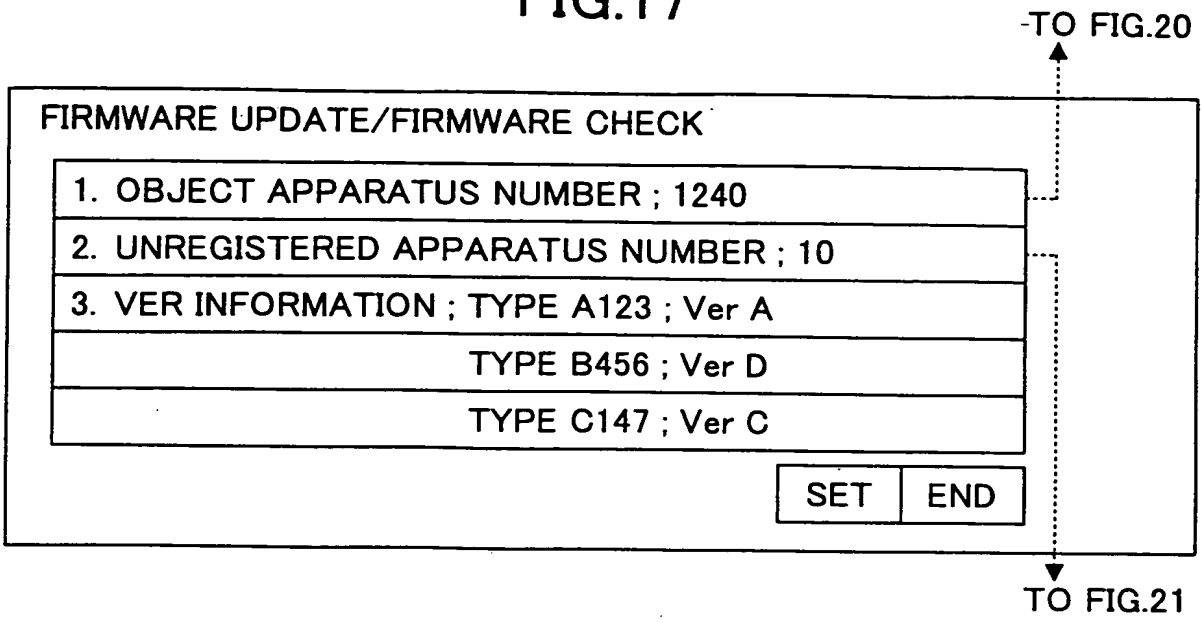

TO FIG.20
FIRMWARE UPDATE/FIRMWARE CHECK
1. OBJECT APPARATUS NUMBER ; 1240
2. UNREGISTERED APPARATUS NUMBER ; 10
3. VER INFORMATION ; TYPE A123 ; Ver A
TYPE B456 ; Ver D
TYPE C147 ; Ver C
SET
END
TO FIG.21

FIG.18

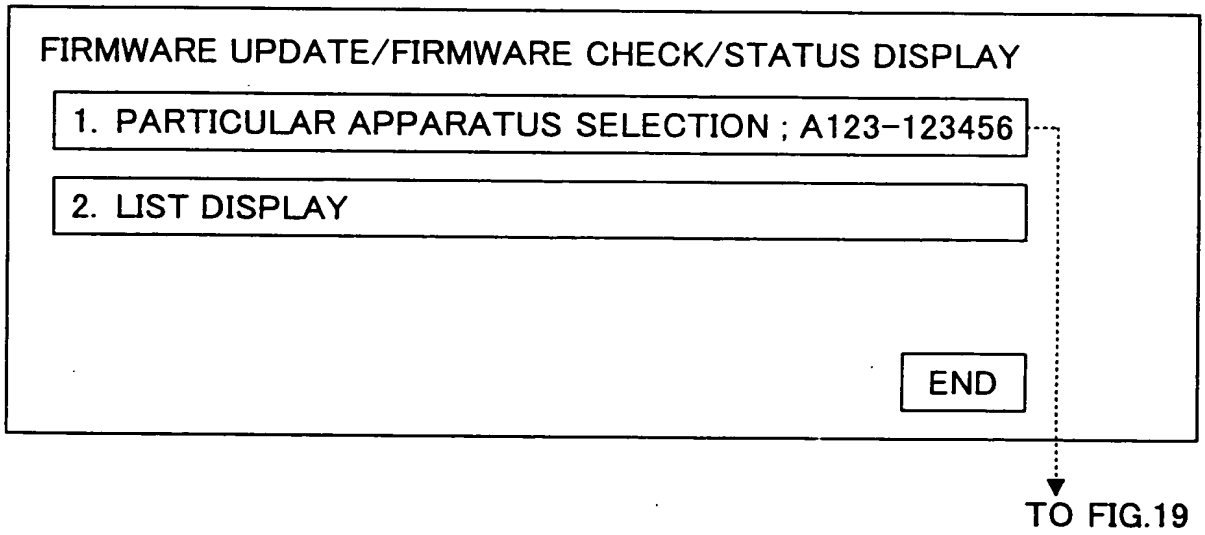

FIRMWARE UPDATE/FIRMWARE CHECK/STATUS DISPLAY
1. PARTICULAR APPARATUS SELECTION ; A123-123456
2. LIST DISPLAY
END
TO FIG.19

FIG.19

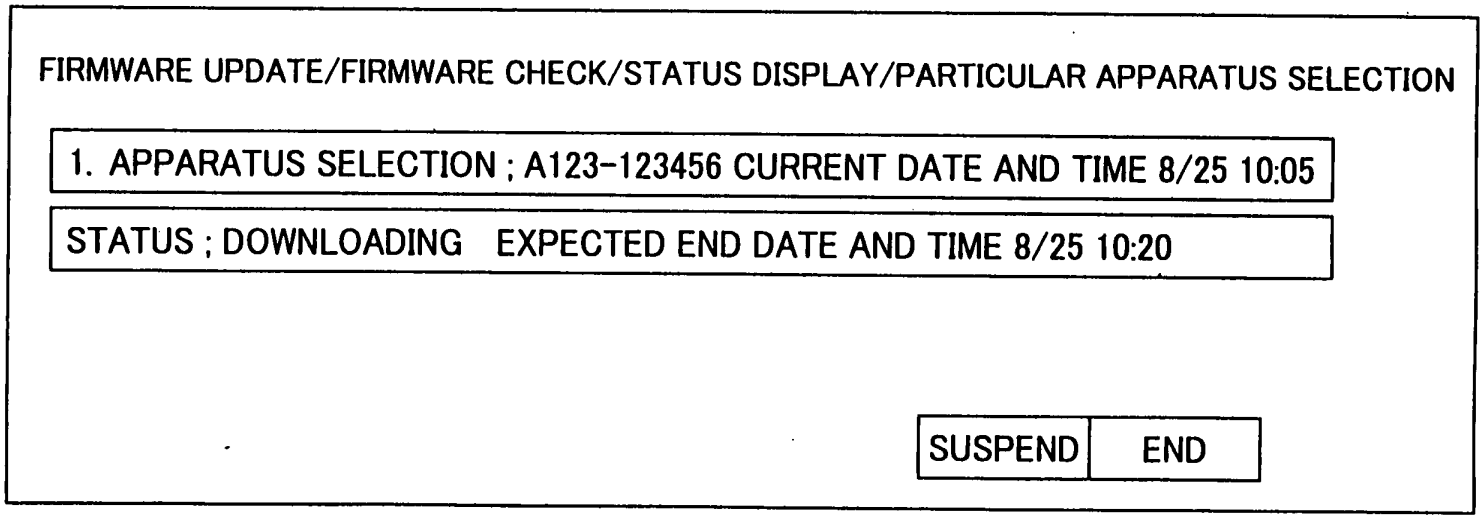

FIRMWARE UPDATE/FIRMWARE CHECK/STATUS DISPLAY/PARTICULAR APPARATUS SELECTION
1. APPARATUS SELECTION ; A123-123456 CURRENT DATE AND TIME 8/25 10:05
STATUS ; DOWNLOADING EXPECTED END DATE AND TIME 8/25 10:20
SUSPEND
END

FIG.20

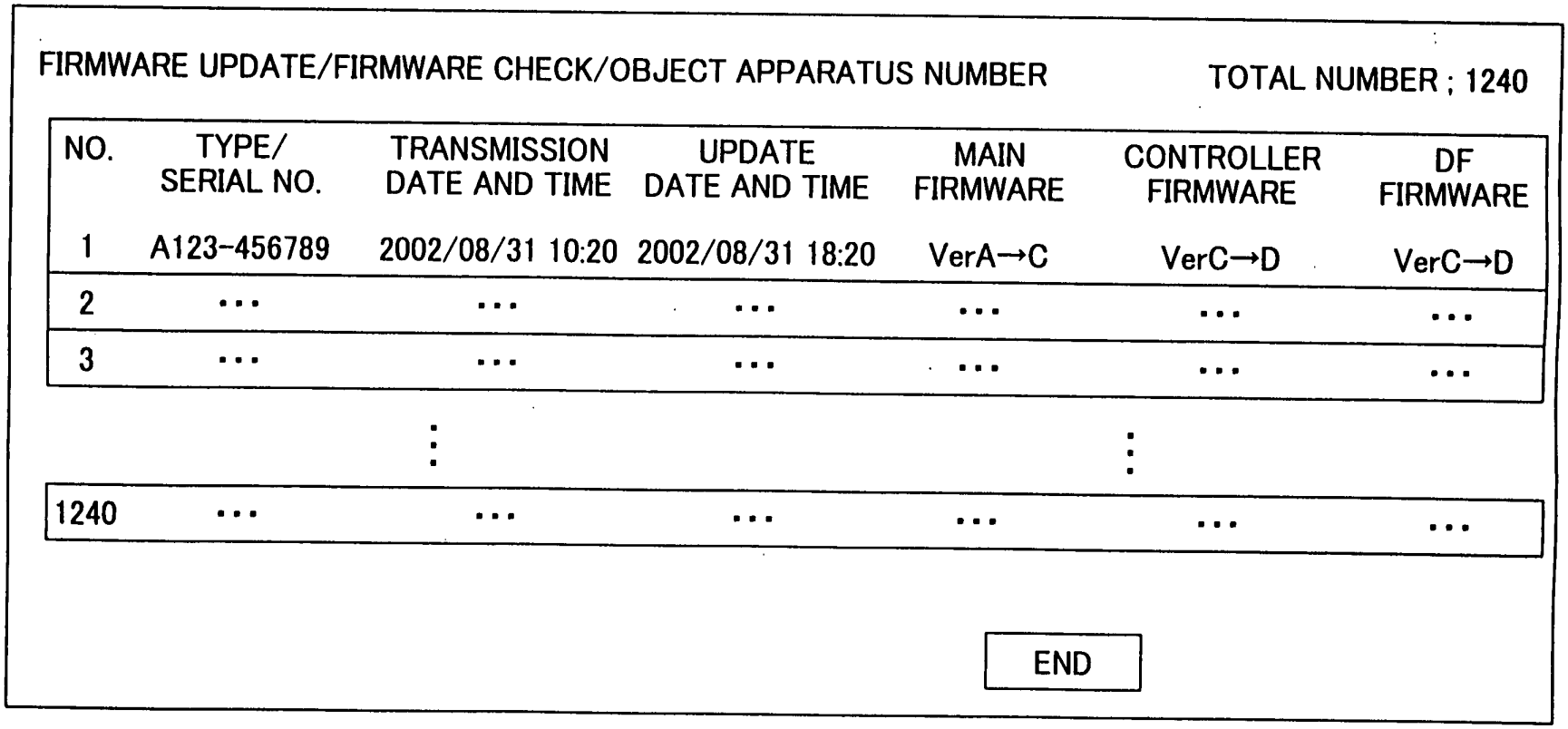

FIRMWARE UPDATE/FIRMWARE CHECK/OBJECT APPARATUS NUMBER
TOTAL NUMBER ; 1240
NO.
TYPE/ SERIAL NO.
TRANSMISSION DATE AND TIME
UPDATE DATE AND TIME
MAIN FIRMWARE
CONTROLLER FIRMWARE
DF FIRMWARE
1
A123-456789
2002/08/31 10:20
2002/08/31 18:20
VerA→C
VerC→D
VerC→D
2
3
1240
END

FIG.21

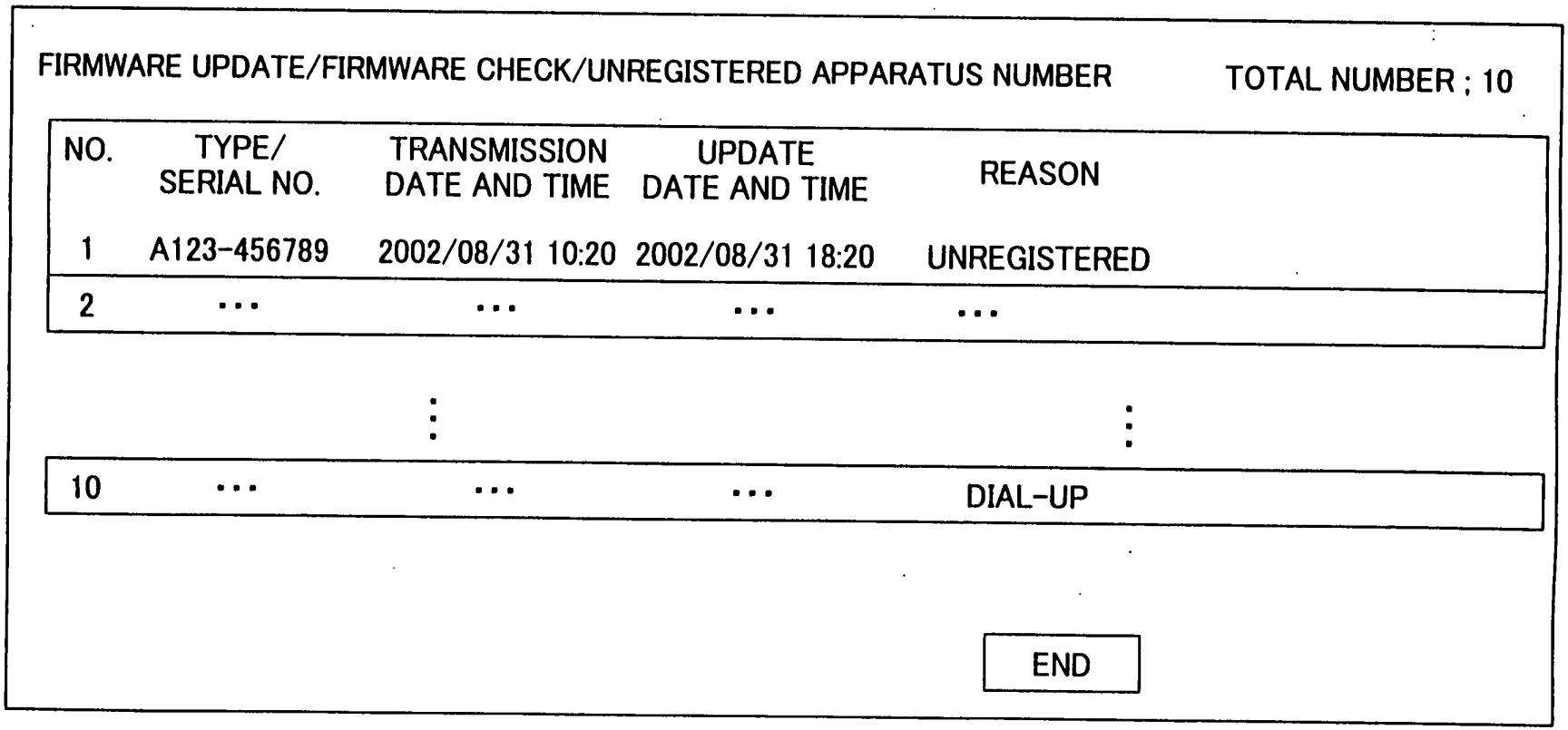

FIRMWARE UPDATE/FIRMWARE CHECK/UNREGISTERED APPARATUS NUMBER
TOTAL NUMBER ; 10
NO.
TYPE/ SERIAL NO.
TRANSMISSION DATE AND TIME
UPDATE DATE AND TIME
REASON
1
A123-456789
2002/08/31 10:20
2002/08/31 18:20
UNREGISTERED
2
...
...
...
...
10
...
...
...
DIAL-UP
END

FIG.22

NO.	TYPE/ SERIAL NO.	TRANSMISSION DATE AND TIME	UPDATE DATE AND TIME	MAIN FIRMWARE	CONTROLLER FIRMWARE	DF FIRMWARE
1	A123-456789	2002/08/31 10:20	2002/08/31 18:20	VerA→C	VerC→D	VerC→D
2	...	...	...	...	...	...
3	...	...	...	...	...	...
4	...	...	...	...	...	...
5	...	...	...	...	...	...
6	...	...	...	...	...	...
7	...	...	...	...	...	...
8	...	...	...	...	...	...
9	...	...	...	...	...	...
10	...	...	...	...	...	...
11	...	...	...	...	...	...

FIG.23

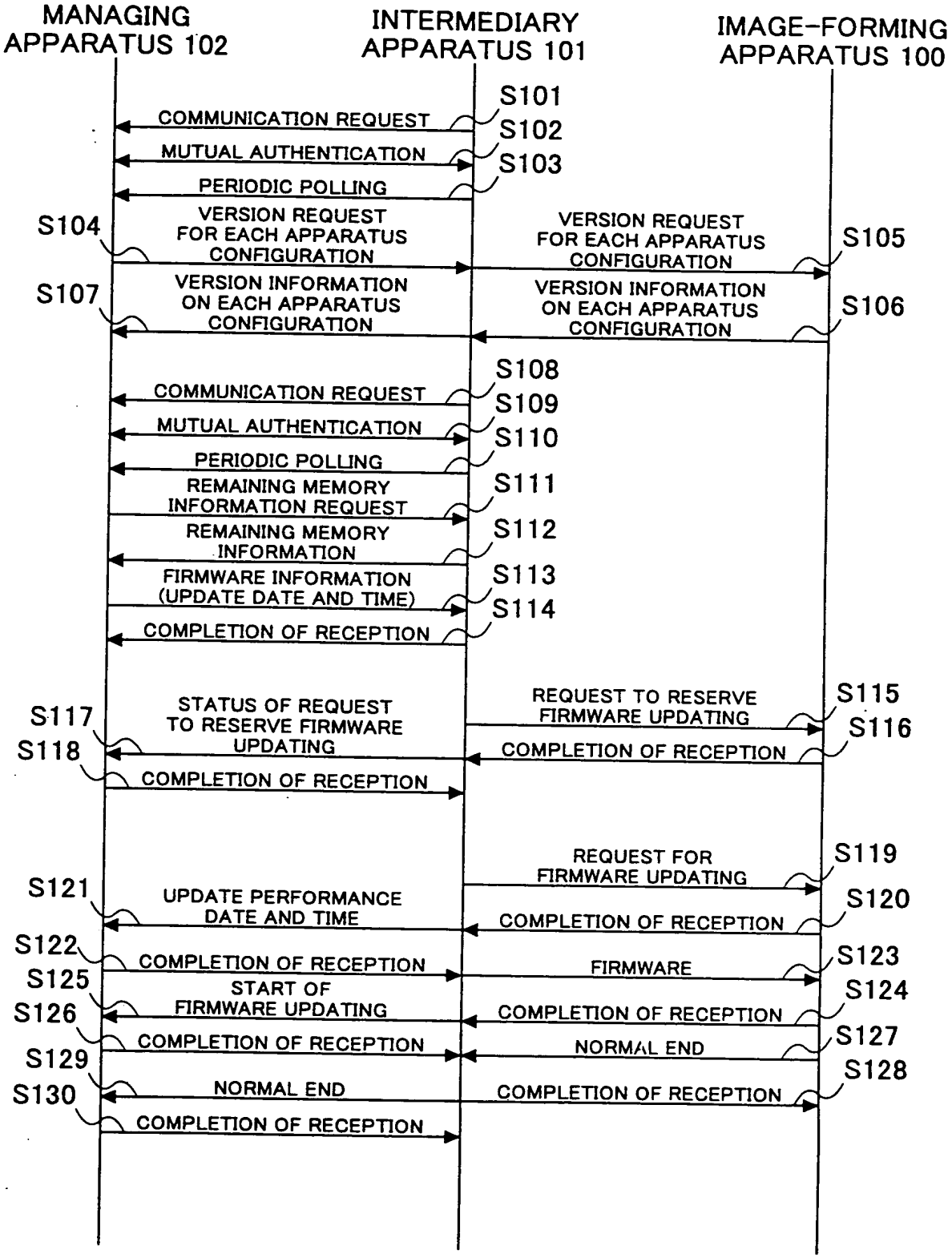

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
S101
COMMUNICATION REQUEST
S102
MUTUAL AUTHENTICATION
S103
PERIODIC POLLING
S104
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S105
S107
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S106
S108
COMMUNICATION REQUEST
S109
MUTUAL AUTHENTICATION
S110
PERIODIC POLLING
S111
REMAINING MEMORY INFORMATION REQUEST
S112
REMAINING MEMORY INFORMATION
S113
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S114
COMPLETION OF RECEPTION
REQUEST TO RESERVE FIRMWARE UPDATING
S115
S117
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
S116
COMPLETION OF RECEPTION
S118
COMPLETION OF RECEPTION
REQUEST FOR FIRMWARE UPDATING
S119
S121
UPDATE PERFORMANCE DATE AND TIME
S120
COMPLETION OF RECEPTION
S122
COMPLETION OF RECEPTION
FIRMWARE
S123
S125
START OF FIRMWARE UPDATING
S124
COMPLETION OF RECEPTION
S126
COMPLETION OF RECEPTION
NORMAL END
S127
S129
NORMAL END
S128
COMPLETION OF RECEPTION
S130
COMPLETION OF RECEPTION

FIG.24

NO.	TYPE/ SERIAL NO.	UPDATE NECESSITY	UPDATE DATE AND TIME	COMMENT
1	A123-456789	YES	2002/08/31 10:20	
2	A214-507890	YES	2002/09/05 18:20	
3	...	NO		
4	...	YES	...	
5	...	NO		
6	...	YES	...	
7	...	YES	...	

FIG.25

NO.	TYPE/ SERIAL NO.	STATUS	TRANSMISSION RATE 1	TRANSMISSION RATE 2	TRANSMISSION DATE AND TIME	UPDATE DATE AND TIME	UPDATE PERFORMANCE DATE AND TIME	MAIN FIRMWARE	CONTROLLER FIRMWARE	DF FIRMWARE
1	A123-456789	CONNECTING	10MB	20MB	...	...	...	VerC	VerD	VerD
2		DOWNLOADING	5MB	5MB	...	...	...	...	...	...
3	...	WAITING FOR UPDATING	0.5MB	50MB	...	...	...	...	...	...
4	...	UPDATING	...	...	...	...	...	...	...	...
5	...	UPDATING SUCCEEDED	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...

FIG.26

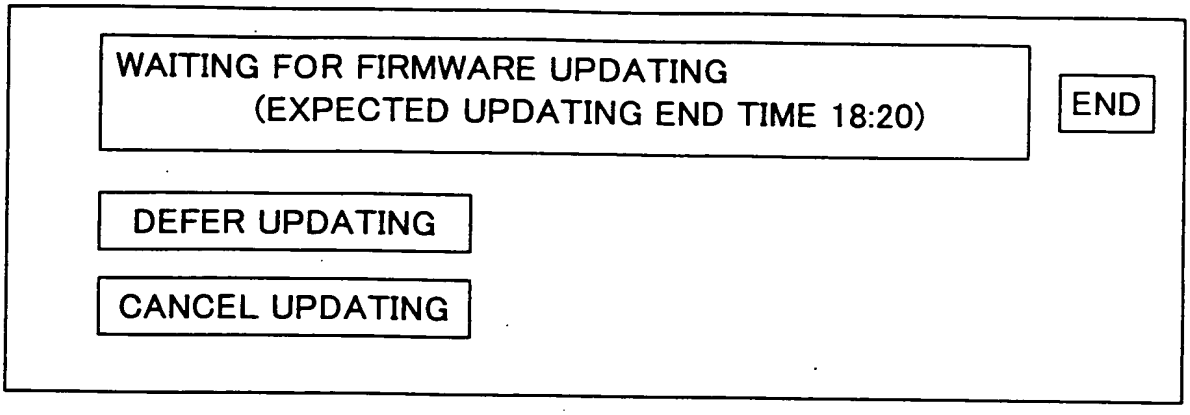


FIG.27

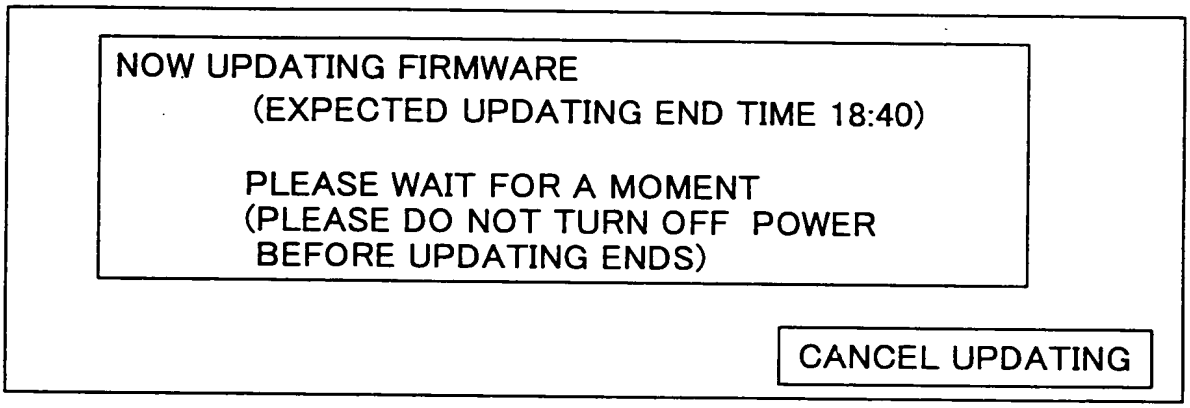


FIG.28

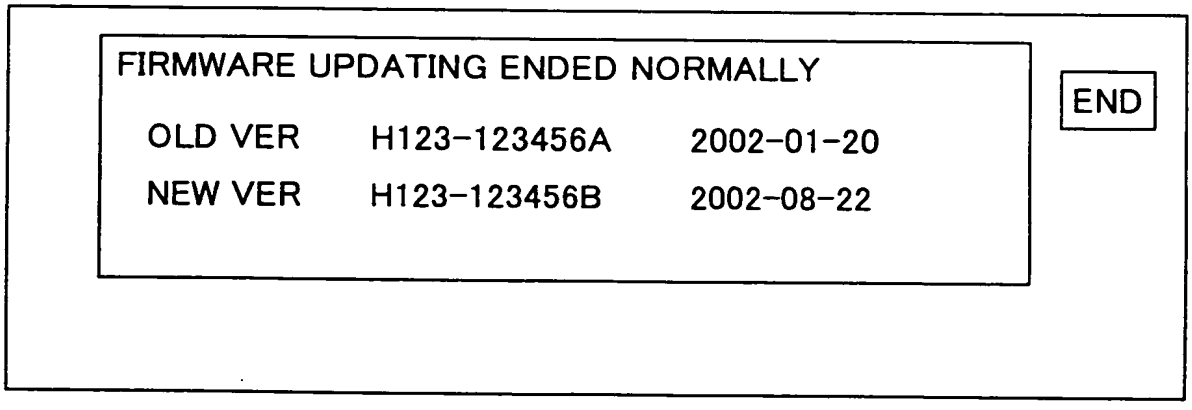


FIG.29

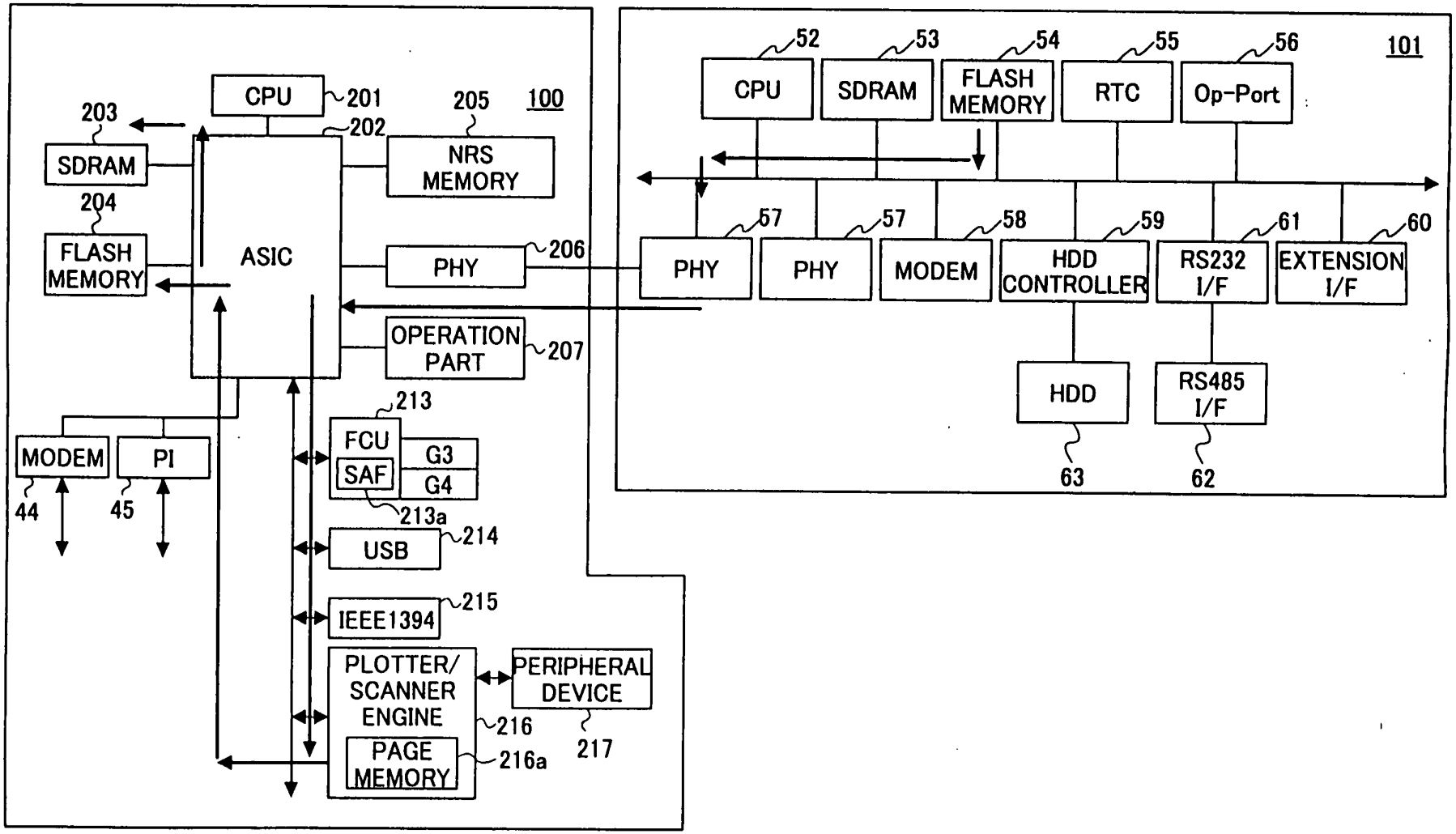

CPU
201
205
100
203
202
SDRAM
NRS MEMORY
204
FLASH MEMORY
ASIC
PHY
206
OPERATION PART
207
213
MODEM
PI
FCU
SAF
G3
G4
44
45
213a
USB
214
IEEE1394
215
PLOTTER/ SCANNER ENGINE
PERIPHERAL DEVICE
216
217
PAGE MEMORY
216a
52
53
54
55
56
101
CPU
SDRAM
FLASH MEMORY
RTC
Op-Port
57
57
58
59
61
60
PHY
PHY
MODEM
HDD CONTROLLER
RS232 I/F
EXTENSION I/F
HDD
RS485 I/F
63
62

FIG.30

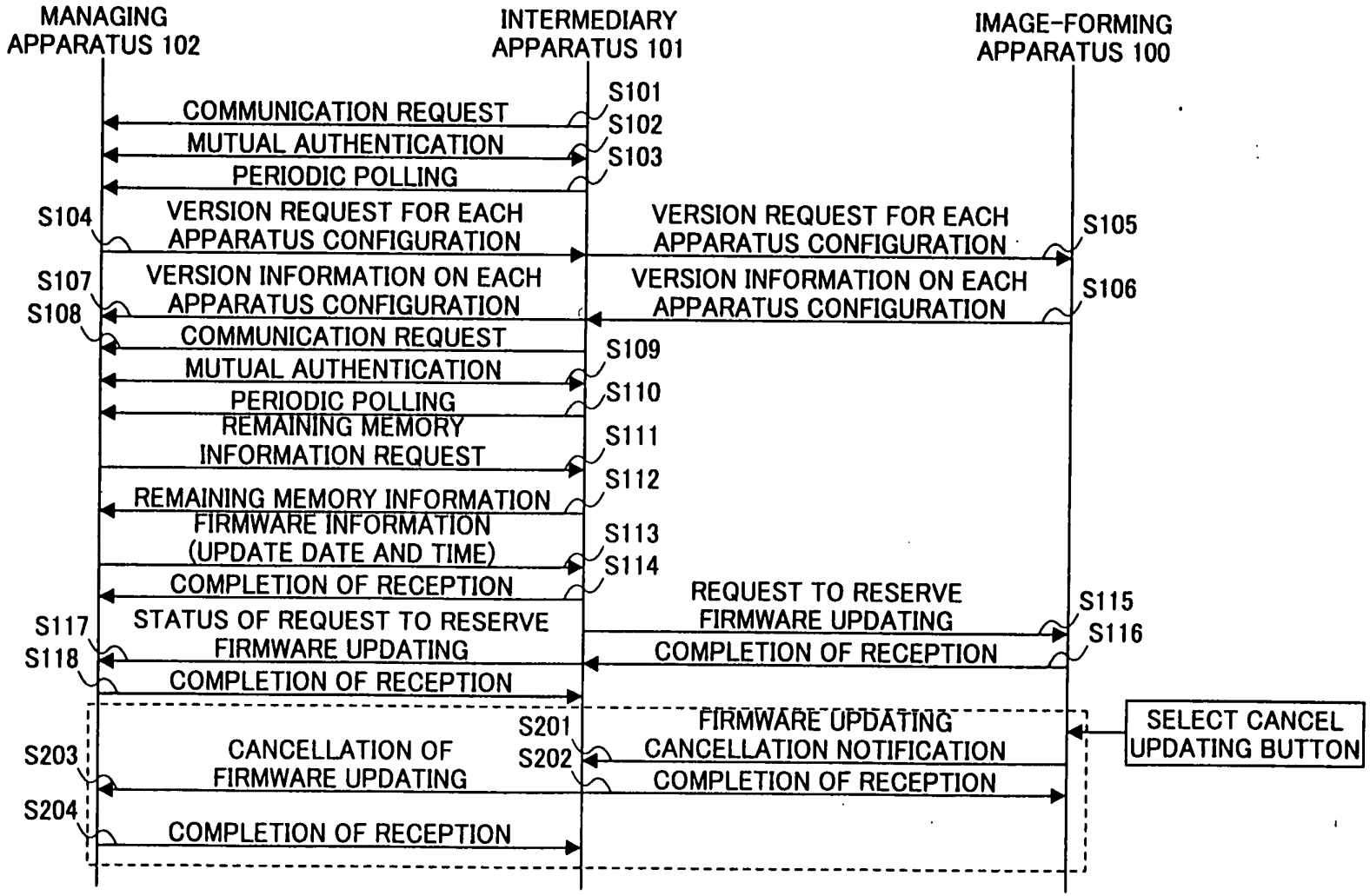

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
S101
COMMUNICATION REQUEST
S102
MUTUAL AUTHENTICATION
S103
PERIODIC POLLING
S104
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S105
S107
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S106
S108
COMMUNICATION REQUEST
S109
MUTUAL AUTHENTICATION
S110
PERIODIC POLLING
REMAINING MEMORY INFORMATION REQUEST
S111
S112
REMAINING MEMORY INFORMATION
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S113
S114
COMPLETION OF RECEPTION
REQUEST TO RESERVE FIRMWARE UPDATING
S115
S117
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
S116
COMPLETION OF RECEPTION
S118
COMPLETION OF RECEPTION
FIRMWARE UPDATING
SELECT CANCEL UPDATING BUTTON
S201
CANCELLATION NOTIFICATION
S203
CANCELLATION OF FIRMWARE UPDATING
S202
COMPLETION OF RECEPTION
S204
COMPLETION OF RECEPTION

FIG.31

NO.	TYPE/ SERIAL NO.	UPDATE NECESSITY	UPDATE DATE AND TIME	COMMENT
1	A123-456789	YES	2002/08/31 10:20	
2	A214-507890	YES	2002/09/05 18:20	BEFORE CANCELLATION
3	...	NO		
4	...	YES	...	
5	...	NO		
6	...	YES	...	
7	...	YES	...	

FIG.32

NO.	TYPE/ SERIAL NO.	UPDATE NECESSITY	UPDATE DATE AND TIME	COMMENT
1	A123-456789	YES	2002/08/31 10:20	
2	A214-507890	NO		AFTER CANCELLATION
3	...	NO		
4	...	YES	...	
5	...	NO		
6	...	YES	...	
7	...	YES	...	

FIG.33

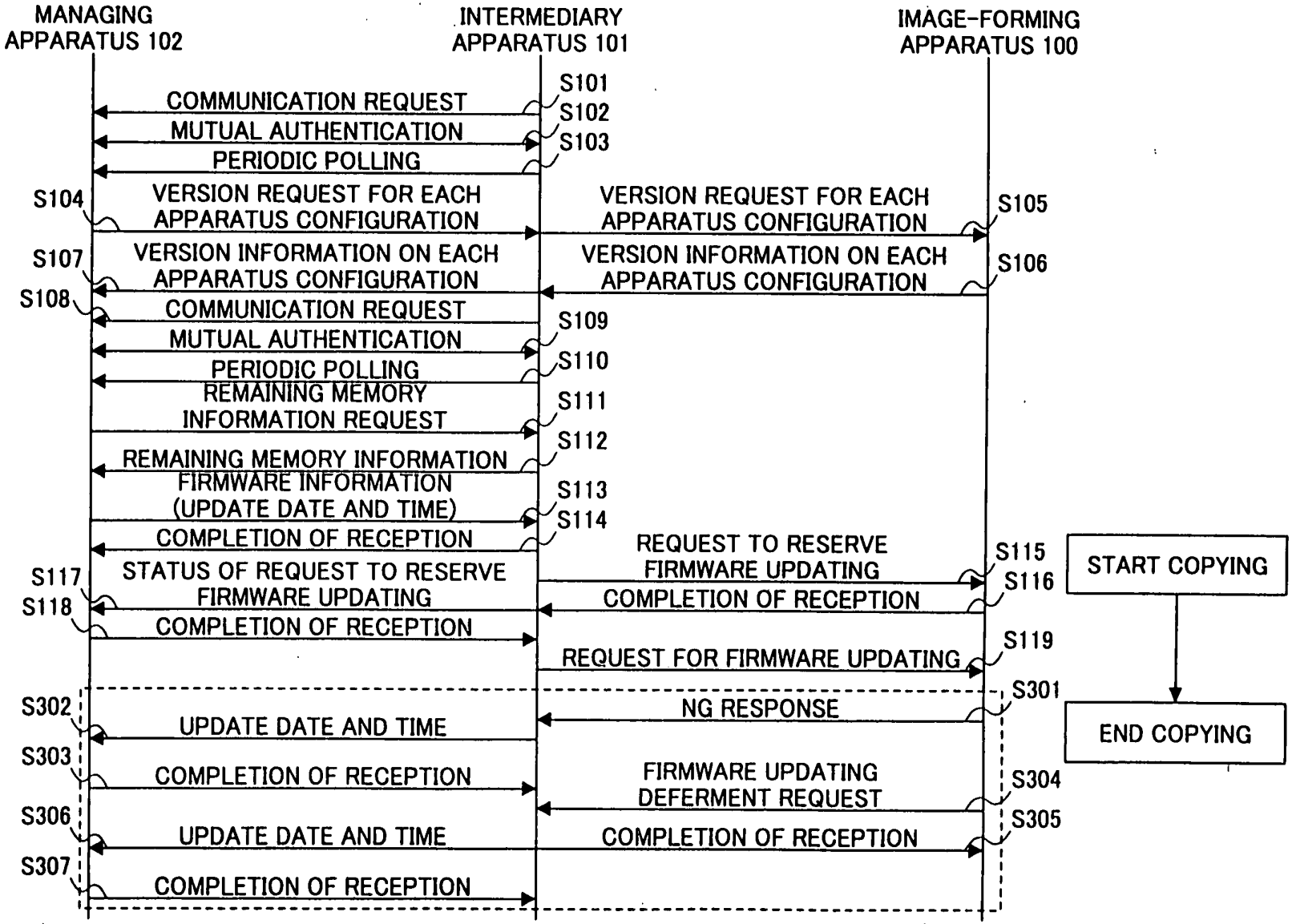

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
S101
COMMUNICATION REQUEST
S102
MUTUAL AUTHENTICATION
S103
PERIODIC POLLING
S104
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S105
S107
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S106
S108
COMMUNICATION REQUEST
S109
MUTUAL AUTHENTICATION
S110
PERIODIC POLLING
REMAINING MEMORY INFORMATION REQUEST
S111
S112
REMAINING MEMORY INFORMATION
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S113
S114
COMPLETION OF RECEPTION
REQUEST TO RESERVE FIRMWARE UPDATING
S115
START COPYING
S117
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
COMPLETION OF RECEPTION
S116
S118
COMPLETION OF RECEPTION
REQUEST FOR FIRMWARE UPDATING
S119
S301
NG RESPONSE
S302
UPDATE DATE AND TIME
END COPYING
S303
COMPLETION OF RECEPTION
FIRMWARE UPDATING DEFERMENT REQUEST
S304
S306
UPDATE DATE AND TIME
COMPLETION OF RECEPTION
S305
S307
COMPLETION OF RECEPTION

FIG.34

NO.	TYPE/ SERIAL NO.	UPDATE NECESSITY	UPDATE DATE AND TIME	COMMENT
1	A123-456789	YES	2002/08/31 10:20	
2	A214-507890	YES	2002/09/05 18:20	BEFORE COPYING
3	...	NO		
4	...	YES	...	
5	...	NO		
6	...	YES	...	
7	...	YES	...	

FIG.35

NO.	TYPE/ SERIAL NO.	UPDATE NECESSITY	UPDATE DATE AND TIME	COMMENT
1	A123-456789	YES	2002/08/31 10:20	
2	A214-507890	YES	2002/09/05 18:40	AFTER COPYING
3	...	NO		
4	...	YES	...	
5	...	NO		
6	...	YES	...	
7	...	YES	...	

FIG.36

ITEM	VALUE	UPDATE DATE AND TIME
DEFERMENT MANAGEMENT PARAMETER	20 MIN.	2002/08/10 10:20

FIG.37

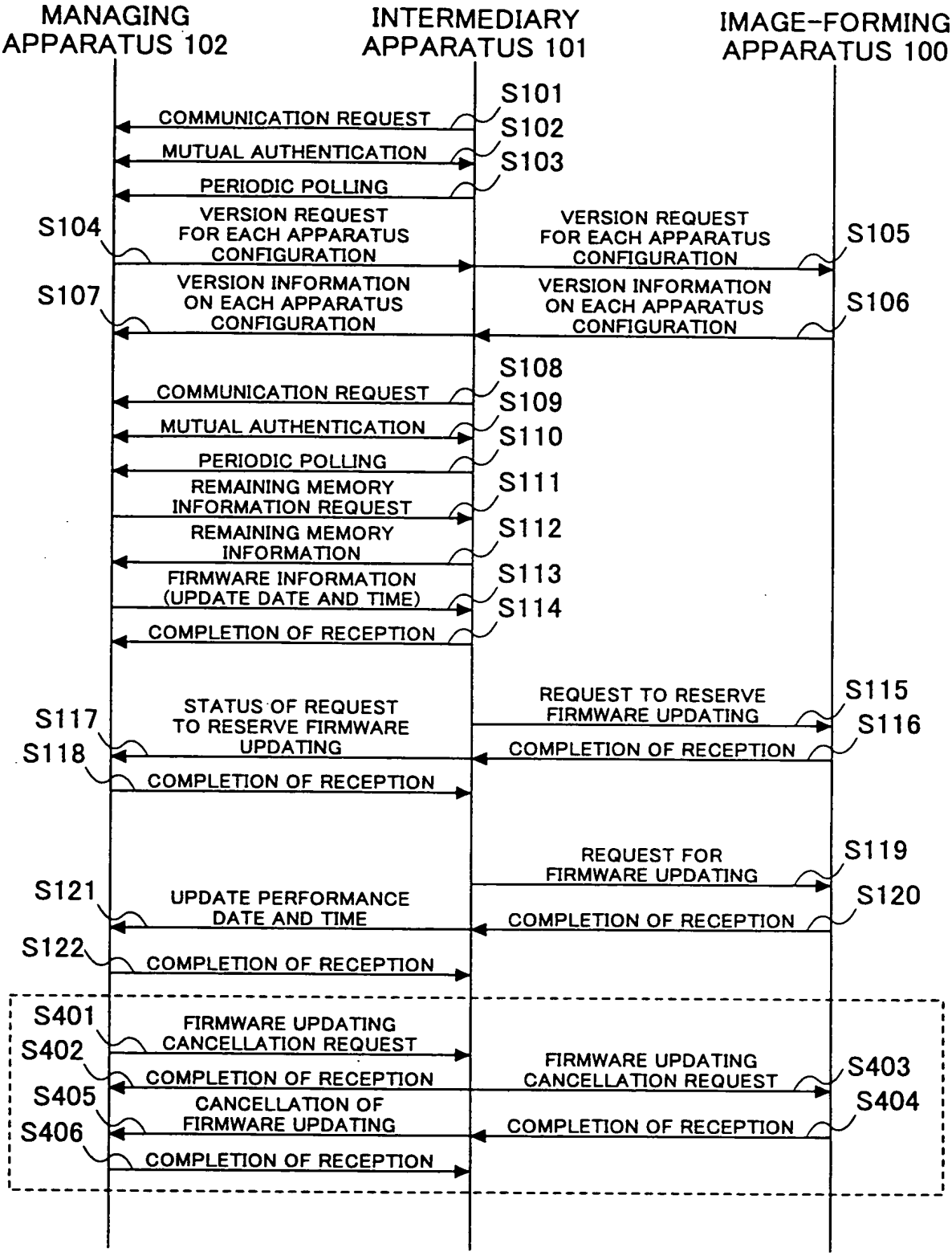

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
S101
COMMUNICATION REQUEST
S102
MUTUAL AUTHENTICATION
S103
PERIODIC POLLING
S104
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S105
S107
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S106
S108
COMMUNICATION REQUEST
S109
MUTUAL AUTHENTICATION
S110
PERIODIC POLLING
S111
REMAINING MEMORY INFORMATION REQUEST
S112
REMAINING MEMORY INFORMATION
S113
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S114
COMPLETION OF RECEPTION
S115
REQUEST TO RESERVE FIRMWARE UPDATING
S117
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
S116
COMPLETION OF RECEPTION
S118
COMPLETION OF RECEPTION
S119
REQUEST FOR FIRMWARE UPDATING
S121
UPDATE PERFORMANCE DATE AND TIME
S120
COMPLETION OF RECEPTION
S122
COMPLETION OF RECEPTION
S401
FIRMWARE UPDATING CANCELLATION REQUEST
S402
COMPLETION OF RECEPTION
FIRMWARE UPDATING CANCELLATION REQUEST
S403
S405
CANCELLATION OF FIRMWARE UPDATING
S404
S406
COMPLETION OF RECEPTION
COMPLETION OF RECEPTION

FIG.38

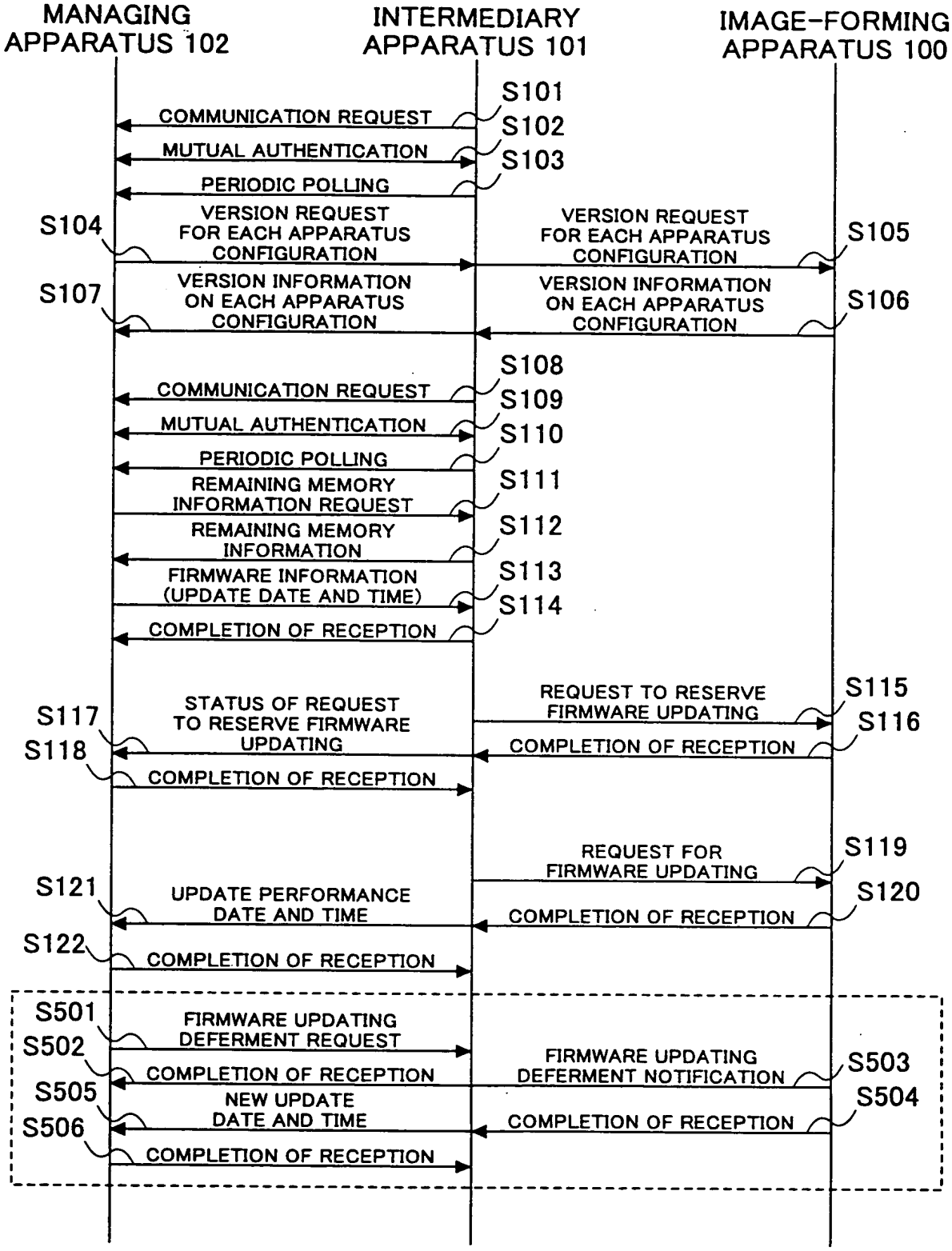

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
S101
COMMUNICATION REQUEST
S102
MUTUAL AUTHENTICATION
S103
PERIODIC POLLING
S104
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S105
S107
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S106
S108
COMMUNICATION REQUEST
S109
MUTUAL AUTHENTICATION
S110
PERIODIC POLLING
S111
REMAINING MEMORY INFORMATION REQUEST
S112
REMAINING MEMORY INFORMATION
S113
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S114
COMPLETION OF RECEPTION
S115
REQUEST TO RESERVE FIRMWARE UPDATING
S117
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
S116
COMPLETION OF RECEPTION
S118
COMPLETION OF RECEPTION
S119
REQUEST FOR FIRMWARE UPDATING
S121
UPDATE PERFORMANCE DATE AND TIME
S120
COMPLETION OF RECEPTION
S122
COMPLETION OF RECEPTION
S501
FIRMWARE UPDATING DEFERMENT REQUEST
S502
COMPLETION OF RECEPTION
FIRMWARE UPDATING DEFERMENT NOTIFICATION
S503
S505
NEW UPDATE DATE AND TIME
S504
S506
COMPLETION OF RECEPTION
COMPLETION OF RECEPTION

FIG.39

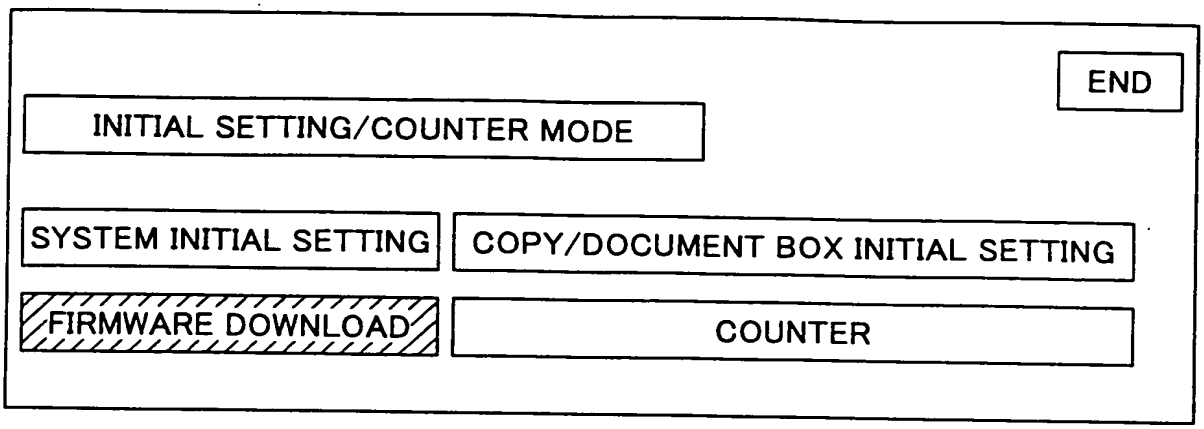
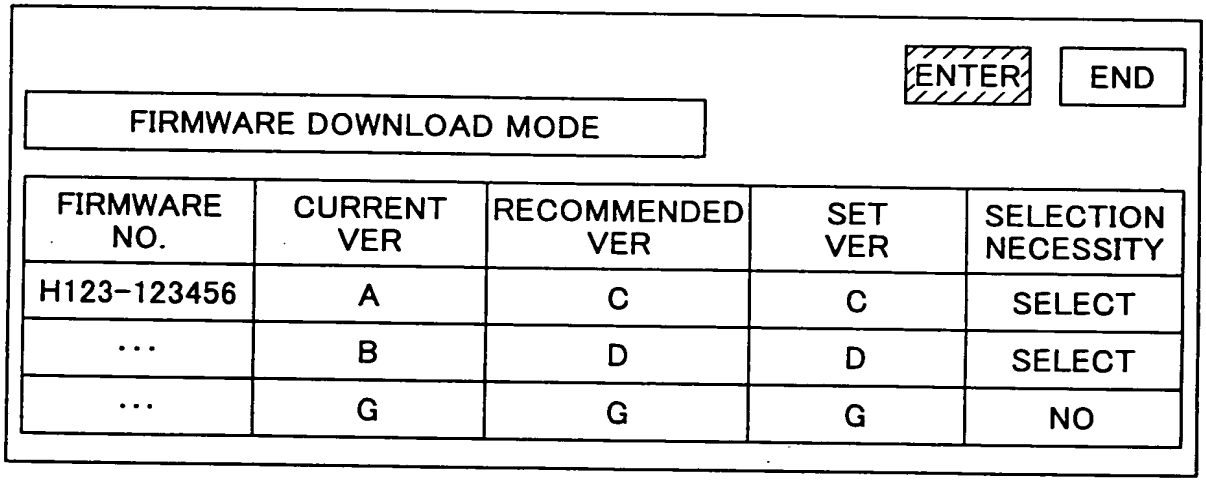
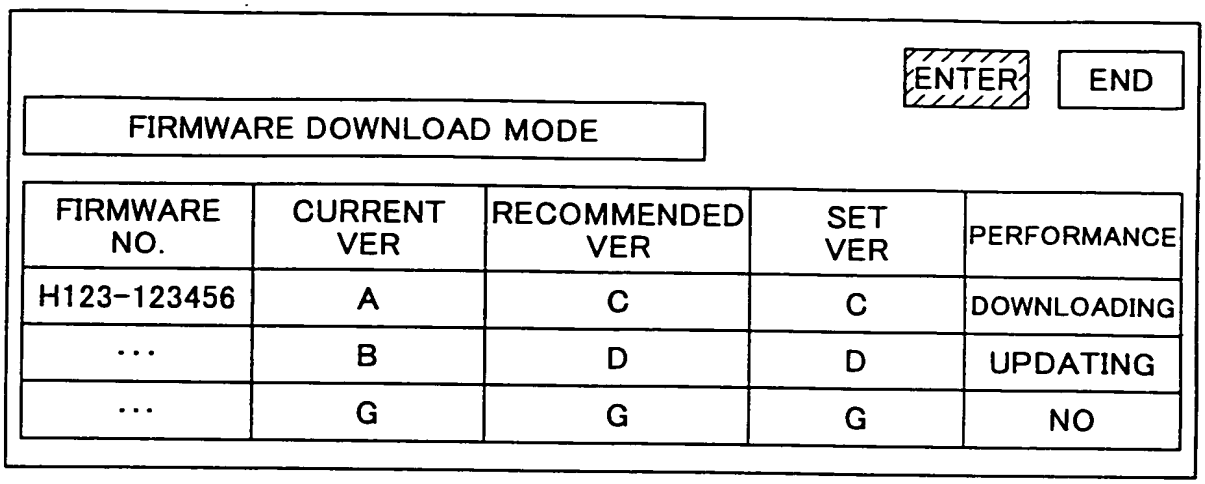


FIG.40



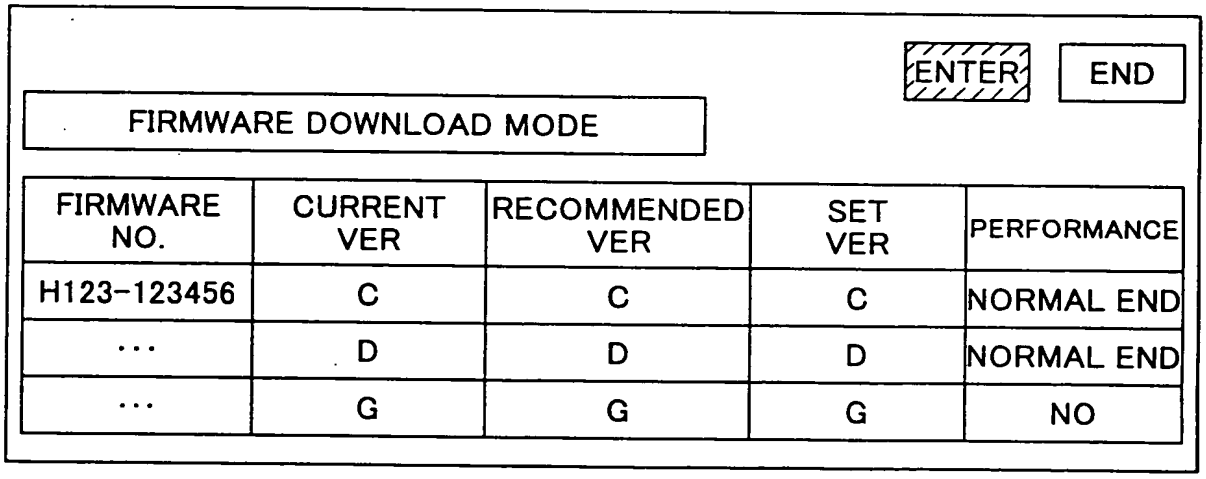
FIRMWARE NO.	CURRENT VER	RECOMMENDED VER	SET VER	SELECTION NECESSITY
H123-123456	A	C	C	SELECT
...	B	D	D	SELECT
...	G	G	G	NO

FIG.41



FIRMWARE NO.	CURRENT VER	RECOMMENDED VER	SET VER	PERFORMANCE
H123-123456	A	C	C	DOWNLOADING
...	B	D	D	UPDATING
...	G	G	G	NO

FIG.42



FIRMWARE NO.	CURRENT VER	RECOMMENDED VER	SET VER	PERFORMANCE
H123-123456	C	C	C	NORMAL END
...	D	D	D	NORMAL END
...	G	G	G	NO

FIG.43

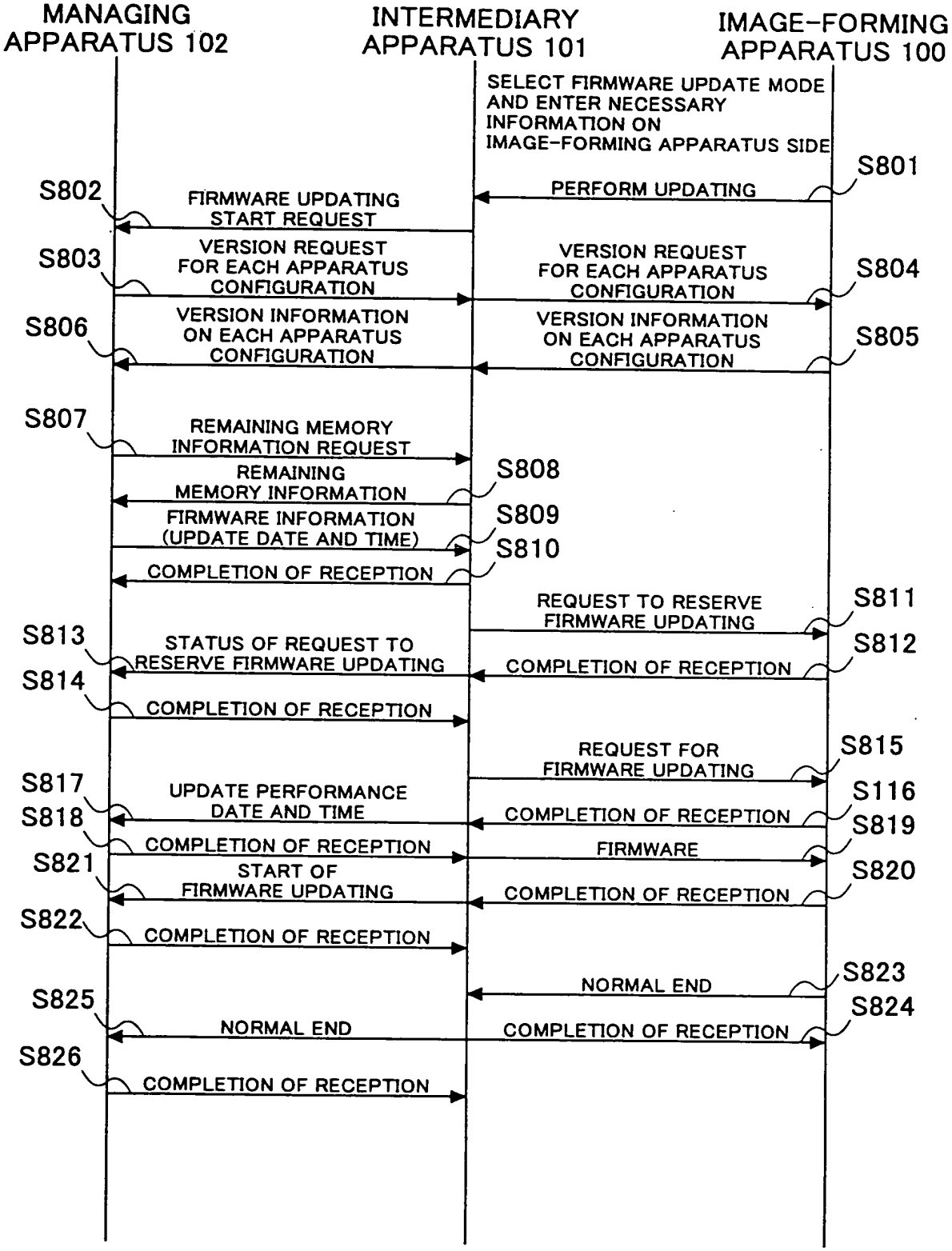

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
SELECT FIRMWARE UPDATE MODE AND ENTER NECESSARY INFORMATION ON IMAGE-FORMING APPARATUS SIDE
S801
PERFORM UPDATING
S802
FIRMWARE UPDATING START REQUEST
S803
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S804
S806
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S805
S807
REMAINING MEMORY INFORMATION REQUEST
REMAINING MEMORY INFORMATION
S808
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S809
COMPLETION OF RECEPTION
S810
REQUEST TO RESERVE FIRMWARE UPDATING
S811
S813
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
COMPLETION OF RECEPTION
S812
S814
COMPLETION OF RECEPTION
REQUEST FOR FIRMWARE UPDATING
S815
S817
UPDATE PERFORMANCE DATE AND TIME
S116
S818
COMPLETION OF RECEPTION
COMPLETION OF RECEPTION
S819
FIRMWARE
S821
START OF FIRMWARE UPDATING
S820
COMPLETION OF RECEPTION
S822
COMPLETION OF RECEPTION
NORMAL END
S823
S825
NORMAL END
COMPLETION OF RECEPTION
S824
S826
COMPLETION OF RECEPTION

FIG.44

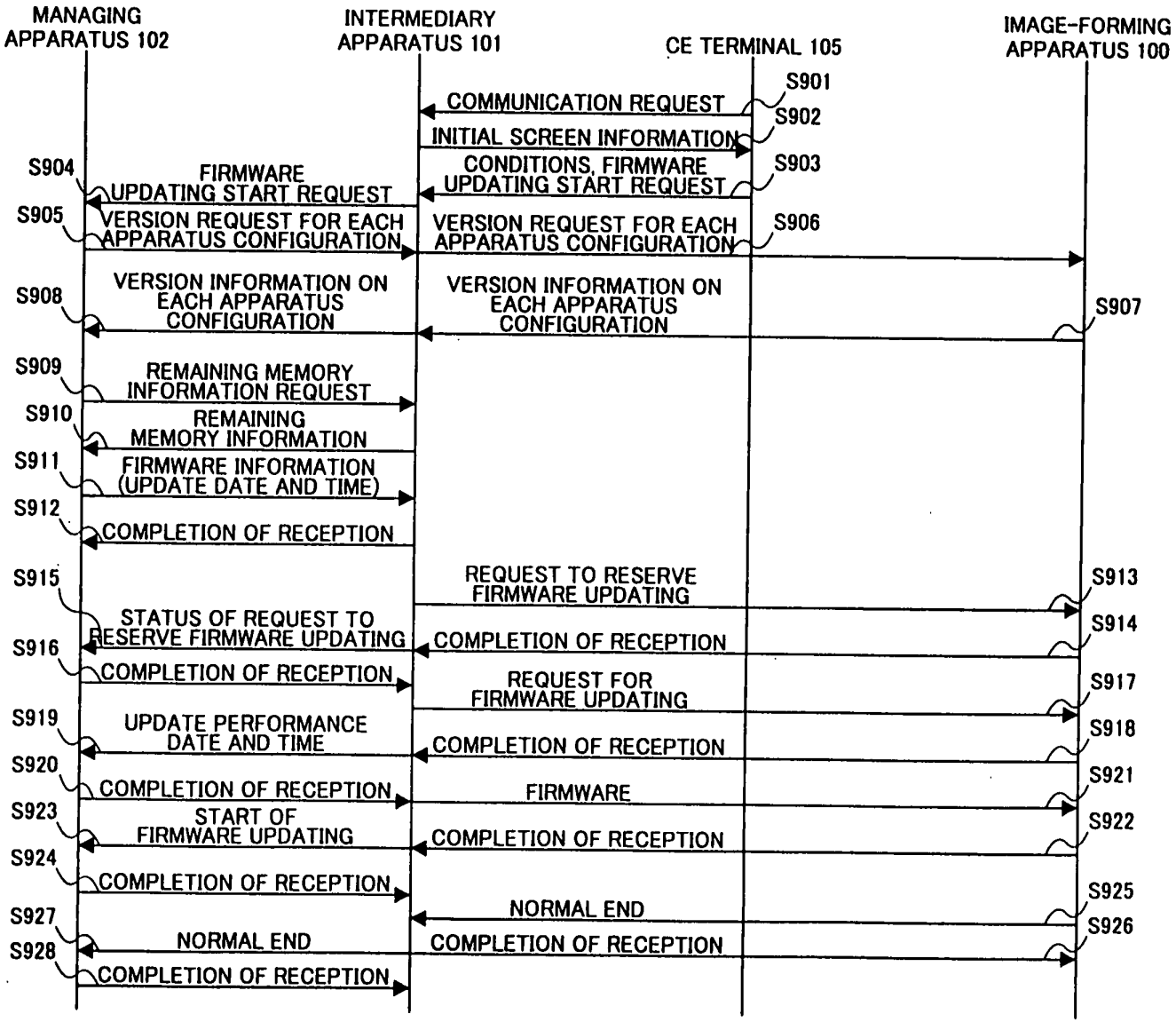

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
CE TERMINAL 105
IMAGE-FORMING APPARATUS 100
S901
COMMUNICATION REQUEST
S902
INITIAL SCREEN INFORMATION
S903
CONDITIONS, FIRMWARE UPDATING START REQUEST
S904
FIRMWARE UPDATING START REQUEST
S905
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
VERSION REQUEST FOR EACH APPARATUS CONFIGURATION
S906
S907
S908
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
VERSION INFORMATION ON EACH APPARATUS CONFIGURATION
S909
REMAINING MEMORY INFORMATION REQUEST
S910
REMAINING MEMORY INFORMATION
S911
FIRMWARE INFORMATION (UPDATE DATE AND TIME)
S912
COMPLETION OF RECEPTION
S913
REQUEST TO RESERVE FIRMWARE UPDATING
S914
COMPLETION OF RECEPTION
S915
STATUS OF REQUEST TO RESERVE FIRMWARE UPDATING
S916
COMPLETION OF RECEPTION
S917
REQUEST FOR FIRMWARE UPDATING
S918
COMPLETION OF RECEPTION
S919
UPDATE PERFORMANCE DATE AND TIME
S920
COMPLETION OF RECEPTION
S921
FIRMWARE
S922
COMPLETION OF RECEPTION
S923
START OF FIRMWARE UPDATING
S924
COMPLETION OF RECEPTION
S925
NORMAL END
S926
COMPLETION OF RECEPTION
S927
NORMAL END
S928
COMPLETION OF RECEPTION

FIG.45A

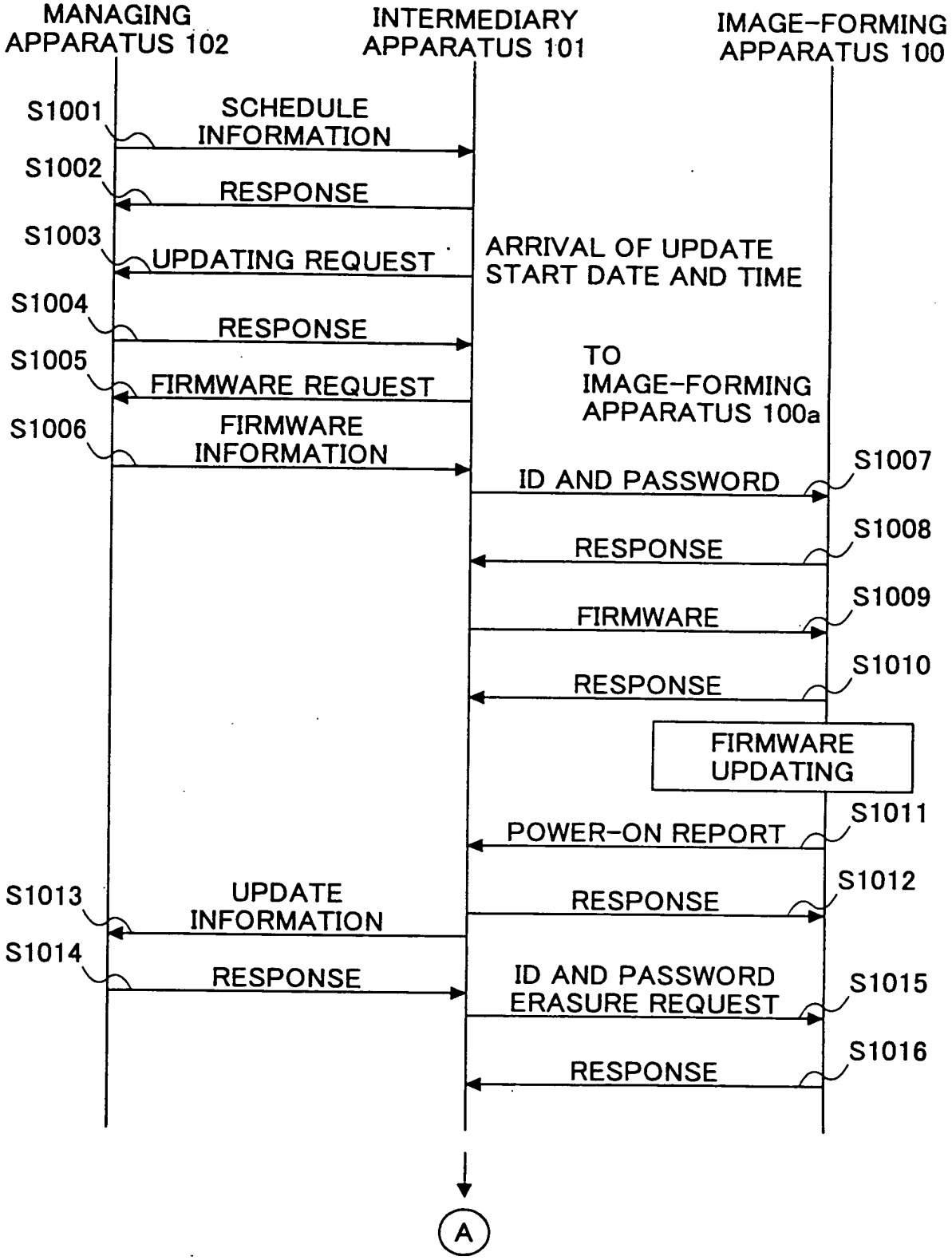

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
S1001
SCHEDULE INFORMATION
S1002
RESPONSE
S1003
UPDATING REQUEST
ARRIVAL OF UPDATE START DATE AND TIME
S1004
RESPONSE
S1005
FIRMWARE REQUEST
TO IMAGE-FORMING APPARATUS 100a
S1006
FIRMWARE INFORMATION
ID AND PASSWORD
S1007
RESPONSE
S1008
FIRMWARE
S1009
RESPONSE
S1010
FIRMWARE UPDATING
POWER-ON REPORT
S1011
RESPONSE
S1012
S1013
UPDATE INFORMATION
S1014
RESPONSE
ID AND PASSWORD ERASURE REQUEST
S1015
RESPONSE
S1016
A

FIG.45B

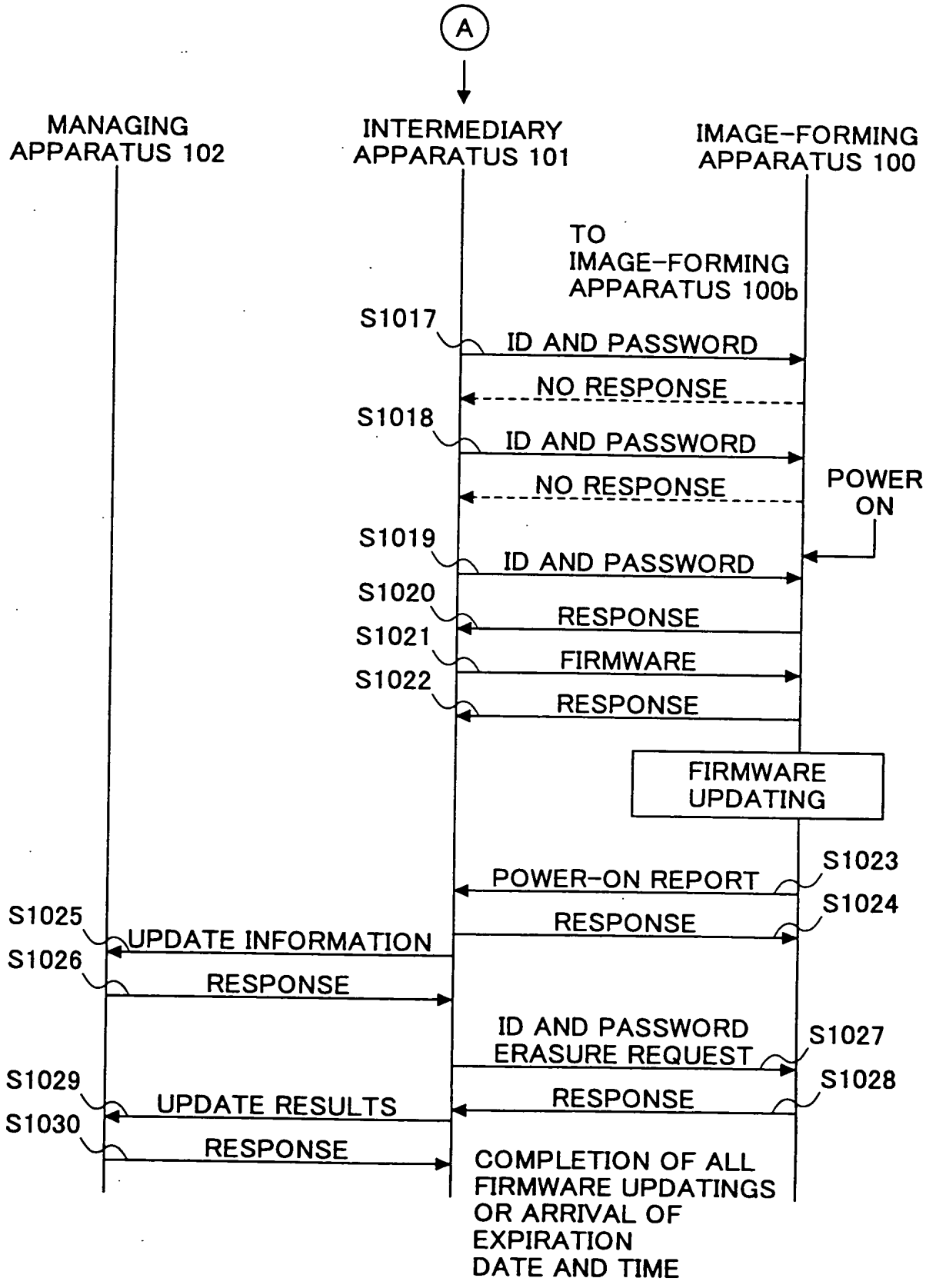

A
MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
IMAGE-FORMING APPARATUS 100
TO IMAGE-FORMING APPARATUS 100b
S1017
ID AND PASSWORD
NO RESPONSE
S1018
ID AND PASSWORD
NO RESPONSE
POWER ON
S1019
ID AND PASSWORD
S1020
RESPONSE
S1021
FIRMWARE
S1022
RESPONSE
FIRMWARE UPDATING
S1023
POWER-ON REPORT
S1024
RESPONSE
S1025
UPDATE INFORMATION
S1026
RESPONSE
ID AND PASSWORD ERASURE REQUEST
S1027
S1028
RESPONSE
S1029
UPDATE RESULTS
S1030
RESPONSE
COMPLETION OF ALL FIRMWARE UPDATINGS OR ARRIVAL OF EXPIRATION DATE AND TIME

FIG.46

NO.	TYPE/ SERIAL NO.	UPDATE START DATE AND TIME	UPDATE END DATE AND TIME	UPDATE RESULT
1	A013-123456	2003/5/30 10:30	2003/6/10 16:30	UPDATING COMPLETED
2	A013-654321	2003/5/30 10:30	2003/6/10 16:30	WAITING FOR RE-UPDATING
3	A013-123321	2003/5/30 10:30	2003/6/10 16:30	ERROR

FIG.47A

TYPE AND SERIAL NO.1, TYPE AND SERIAL NO.2, TYPE AND SERIAL NO.3	UPDATE START DATE AND TIME	UPDATE END DATE AND TIME

FIG.47B

INTERMEDIARY APPARATUS INFORMATION	TYPE AND SERIAL NO.1, TYPE AND SERIAL NO.2, TYPE AND SERIAL NO.3	UPDATE START DATE AND TIME	UPDATE END DATE AND TIME

FIG.48A

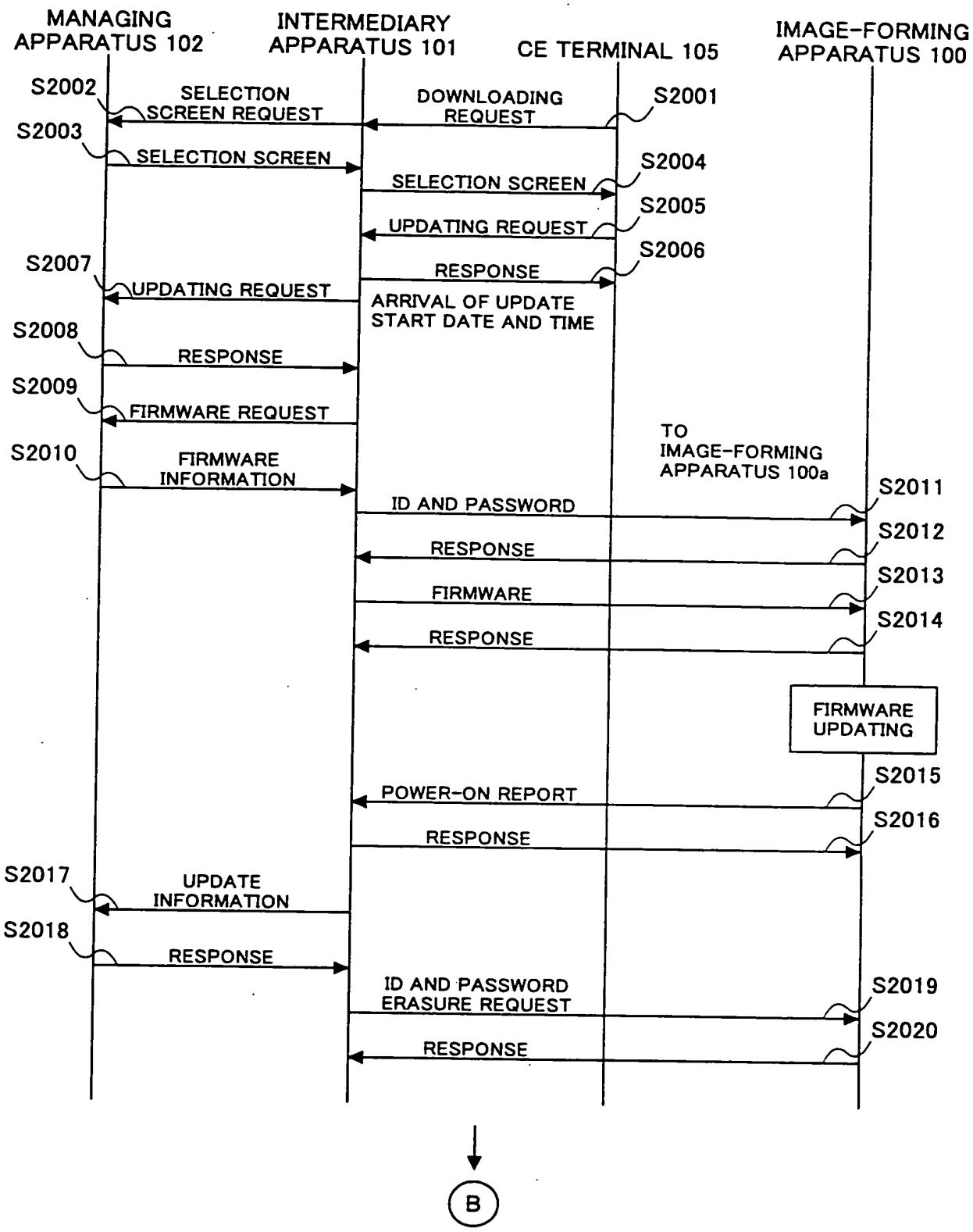
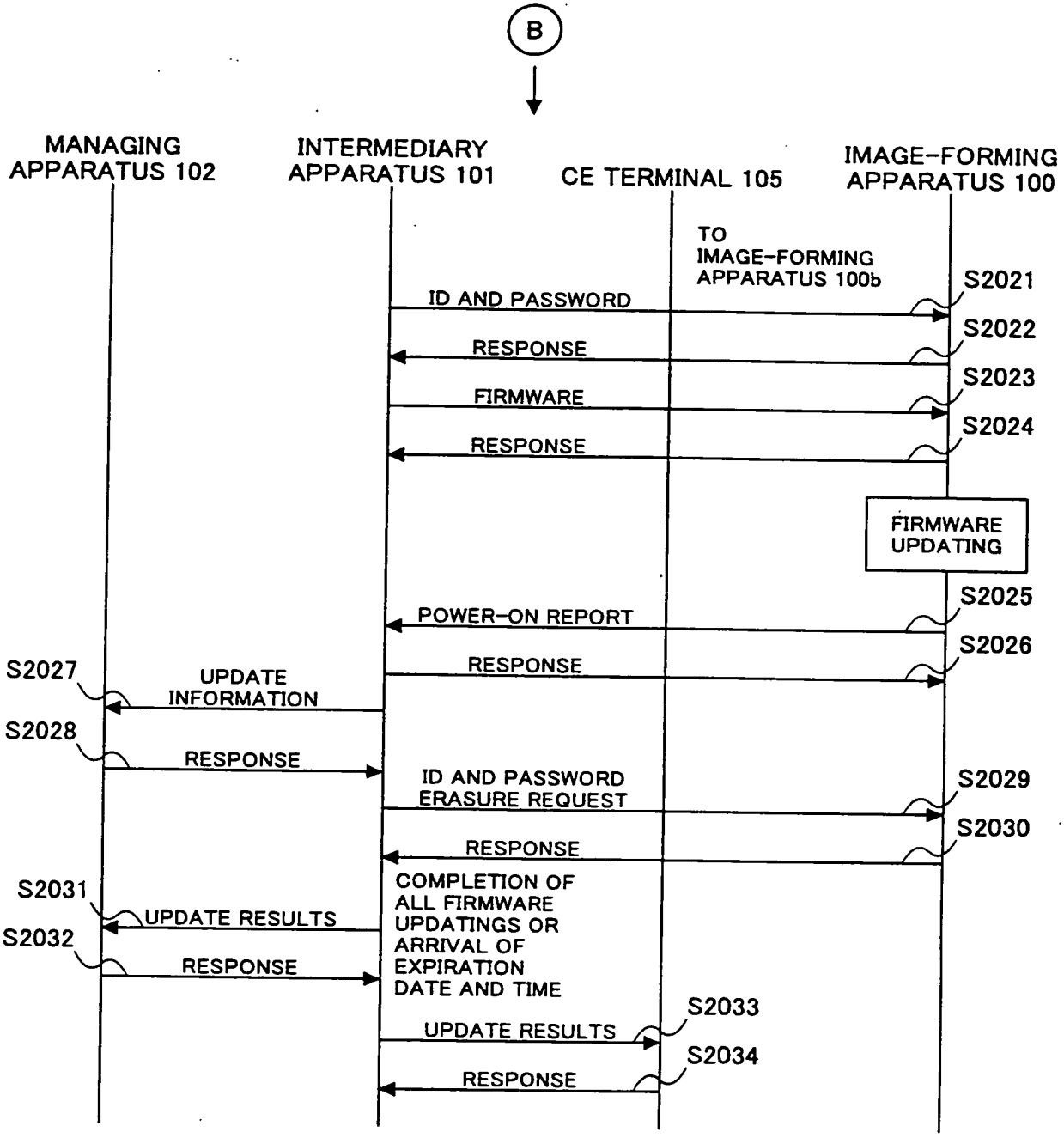

MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
CE TERMINAL 105
IMAGE-FORMING APPARATUS 100
S2002
SELECTION SCREEN REQUEST
DOWNLOADING REQUEST
S2001
S2003
SELECTION SCREEN
S2004
SELECTION SCREEN
S2005
UPDATING REQUEST
S2006
RESPONSE
S2007
UPDATING REQUEST
ARRIVAL OF UPDATE START DATE AND TIME
S2008
RESPONSE
S2009
FIRMWARE REQUEST
TO IMAGE-FORMING APPARATUS 100a
S2010
FIRMWARE INFORMATION
S2011
ID AND PASSWORD
S2012
RESPONSE
S2013
FIRMWARE
S2014
RESPONSE
FIRMWARE UPDATING
S2015
POWER-ON REPORT
S2016
RESPONSE
S2017
UPDATE INFORMATION
S2018
RESPONSE
ID AND PASSWORD ERASURE REQUEST
S2019
S2020
RESPONSE
B

FIG.48B


B
MANAGING APPARATUS 102
INTERMEDIARY APPARATUS 101
CE TERMINAL 105
IMAGE-FORMING APPARATUS 100
TO IMAGE-FORMING APPARATUS 100b
S2021
ID AND PASSWORD
S2022
RESPONSE
S2023
FIRMWARE
S2024
RESPONSE
FIRMWARE UPDATING
S2025
POWER-ON REPORT
S2026
RESPONSE
S2027
UPDATE INFORMATION
S2028
RESPONSE
ID AND PASSWORD ERASURE REQUEST
S2029
S2030
RESPONSE
COMPLETION OF ALL FIRMWARE UPDATINGS OR ARRIVAL OF EXPIRATION DATE AND TIME
S2031
UPDATE RESULTS
S2032
RESPONSE
S2033
UPDATE RESULTS
S2034
RESPONSE